Climate Change Vulnerability Data Book

Climate Change Vulnerability in Sri Lanka

Maps and Data by Sector

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Abbreviations & Acronyms

ADB	Asian Development Bank
CC	Climate Change
CCS	Climate Change Secretariat
DMC	Disaster Management Center
DSD	Divisional Secretariat Divisions
GDP	Gross Domestic Product
GN	Grama Niladari
GIS	Geographic Information Systems
GOSL	Government of Sri Lanka
IEC	Information, Education and Communication
IPCC	Intergovernmental Panel on Climate Change
IWMI	International Water Management Institute
MOH	Medical Office for Health
NCCAS	National Climate Change Adaptation Strategy
SLTDA	Sri Lanka Tourism Development Authority
SVP	Sector Vulnerability Profile
TA	Technical Assistance

INTRODUCTION

In 2009, responding to a request from the Government of Sri Lank (GOSL), the Asian Development Bank (ADB) initiated a technical assistance (TA) project titled "Strengthening Capacity for Climate Change Adaptation". The TA was implemented through the Climate Change Secretariat (CCS) of the Ministry of Environment. Working with and through the CCS, the project aimed to increase Sri Lanka's resilience to climate change impacts, whilst pursuing sustainable economic development and natural environment conservation. It also was expected to stimulate improved effectiveness and better organization of stakeholders to address climate change adaptation in Sri Lanka. The primary goal of the TA was to support the GOSL initiative to adapt key sectors in the economy and safeguard Sri Lanka's national interest against climate change threats. The primary outputs of the TA were Sector Vulnerability Profiles (SVPs), the National Climate Change Adaptation Strategy (NCCAS), and the Information Education and Communications (IEC) Strategy.

One of the key components of the SVPs, which forms much of the background for the NCCAS, was a GIS vulnerability mapping exercise, carried out to get a sense of the scale and spatial distribution of potential climate change vulnerabilities in the country. Vulnerability mapping was carried out for the five key sector groupings considered critical for national development:

- Urban Development, Human Settlements and Economic Infrastructure
- Water
- Agriculture and Fisheries
- Health
- Biodiversity and Ecosystem Services

Each sub-sector's vulnerability to expected increases in floods, droughts, landslides as well as sea level rise have been considered in the mapping process. The mapping methodology and indices used are discussed in detail later on.

The purpose of this data book is to make the data collected and processed for this exercise readily available to all interested. It is also expected that such data availability will encourage interested parties to refine the findings and methodology further, and also to ensure that there is a base line for future comparisons.

MAPPING METHODOLOGY

According to the IPCC, ***vulnerability*** is the degree to which a system is susceptible to, or unable to cope with adverse effects of climate change. Vulnerability is a function of the character, magnitude and rate of climate variation and its effects to which a system is exposed, its sensitivity, and its adaptive capacity. ***Exposure*** means the nature and degree to which a system is exposed to significant climatic variations. ***Sensitivity*** is the degree to which a system is affected either adversely or beneficially by climate related stimuli. ***Adaptive capacity*** is the ability of the system to adjust to climate change to moderate potential damages, to take advantage of new opportunities or to cope with the consequences

The vulnerability mapping exercise undertaken[1] as part of NCCAS development process builds on this IPCC assertion and definition of vulnerability.

The analysis is intended for use as a macro level planning tool, to illustrate where sector-specific vulnerability is high, in relative terms, across the nation, and to guide decisions on prioritization and targeting of potential climate change adaptation responses

The basic methodology involved in the GIS mapping was to develop indices for exposure, sensitivity, and adaptive capacity relevant to each given sector. These three indices were then combined to create a composite sector-specific vulnerability index. The analysis is largely based on publicly available data sources. Areas where complete and comparable data sets of relevant indicators could not be obtained (such as the North and East where census data is not available) were not analyzed, and will need to be evaluated at a future stage, perhaps after the 2011 census is complete. The mapping process involved several key steps:

1. Developing Common Exposure Indices:

Separate Exposure Indices for flood, drought, and landslide exposure up to a DS division level of detail were developed based on historic data on the frequency and scale of disaster events (assessed in terms of number of people affected) from the Disaster Management Centre (DMC). Available data ranging from 1974 to 2008 were used.

The Exposure Index for sea level rise was based on a ratio of the area of land within 2M above sea level as a percentage of total land area within 5km from the coastline in each DS Division. Topography data for the index was obtained from the ASTER 30M Digital Elevation Model.

The above Exposure Indices are common across all sectors. (see Appendix A)

2. Developing Sector-specific Sensitivity and Adaptive Capacity Indices

While exposure levels to hazards (i.e. floods, landslides, droughts and sea level rise) are common to all sectors, sensitivity and adaptive capacity vary substantially. The Sensitivity and Adaptive Capacity Indices are unique to each sector and the indicators used in their formulation are given in the following pages along with the vulnerability maps.

The primary challenge in developing the sector specific Sensitivity and Adaptive Capacity Indices was obtaining complete and comparable datasets of relevant indicators that covered the entire nation at the required level of detail. Most of the demographic data used in developing these indices was extracted from the 2001 National Census—in which no data were available for the North and East of the country. No viable and reliable alternative source of comparable demographic data exists. Therefore, vulnerability of the North and East could not be clearly assessed in some sectors.

3. Deriving the Vulnerability Indices

As IPCC asserts, vulnerability is a combination of exposure, sensitivity, and adaptive capacity. Therefore, to arrive at sector-specific assessments of vulnerability to various exposure types, the three relevant indices were combined by taking their averages. For example, to understand vulnerability of the drinking water sector to drought exposure, the following indices were combined: Drought Exposure Index, Drinking Water Sensitivity Index, and Drinking Water Adaptive Capacity Index.

[1]IWMI's CC Vulnerability Index as in Eriyagama et. al., 2010 was used as a starting point and substantially refined for finer grain and sector specific analysis.[19]

Certain exposure types (i.e. landslides, floods, droughts, and sea level rise) do not substantially impact some sectors. Therefore, only exposure types relevant to each sector were analyzed and illustrated.

4. Filtering and Refining the Indices

The raw indices include distortions. Some DSDs have little or no exposure to certain hazards, while others have little or no sensitivity. For example, some DSDs did not have any incidence of landslides historically, and hence had a zero value for exposure. Similar instances apply to sensitivity. For example, a DSDs with no hotel or guest house rooms will have a zero value in its Sensitivity Index, while a DSD with just 10 rooms will be negligible in terms of its sensitivity. Yet when values from all indices for such a DSD are combined, some level of vulnerability is indicated.

To remedy this distortion, the datasets were filtered. All DSDs with either exposure or sensitivity falling within the lowest 5th percentile were removed. The Vulnerability Indices were then recomputed. So DSDs with negligible levels of sensitivity or exposure were excluded from the refined Vulnerability Indices.

5. Classification and Data Mining

Once Vulnerability Indices for specific sectors to specific exposure types were established, each index was then ranked and DS divisions classified into four categories based on natural breaks in the index values. These were then mapped geographically, to illustrate rather clearly, the geographic distribution of vulnerability across key sectors.

Besides being able to visually illustrate the distribution of vulnerability, the mapping exercise also enables us to unlock a wealth of data about the scale of vulnerability in given sectors. For example, once we know which DSDs have transport sectors highly vulnerable to flood exposure—we can then, through simple assessment of public data sets, uncover how many kilometres of roads and railroads are in those DSDs, understand the demographics of the underlying communities, etc.

Limitations

As with most similar initiatives, this mapping exercise is limited in scope and should be refined on an ongoing basis, based on detailed data which may become available from various agencies. The DSD-level analysis performed for most sectors, is useful as a macro-level planning tool. However, it is not fine-grain enough to do local-level planning or detailed assessments. Demographic data was from the 2001 National Census, the best source available at the time of the study, but lacked effective coverage of the North and East (due to the conflict).

It was not possible to get DSD level data for the health and biodiversity sectors. The Ministry of Health collects data by what it calls “MOH Areas”, boundaries of which are poorly defined and not congruent with DSD boundaries. Therefore, the District level—where data were available—was used as the unit of analysis. Biodiversity data was also very limited, and again analysis was only performed up to a district level, where data were available.

It is noted that relevant agencies are carrying out detailed hazard mapping at the national and regional levels.[2] Also, more up-to-date demographic and other information, covering the entire country will be available when the 2011 is complete. It is strongly recommended, therefore, that the vulnerability mapping exercise is repeated in a few years.

[2]For example, the Disaster Management Centre is currently coordinating a detailed risk profiling exercise for the major disaster types, at a much higher level of detail, in collaboration with the Coast Conservation Department, Irrigation Department, the National Building Research Organization, and several others. The maps generated through the DMC exercise would provide much finer grain information for exposure indices.

MAPS AND DATA BY SECTOR

INFORMATION INCLUDED IN THE DATABOOK

This databook is intended as a resource for researchers and planners involved in understanding and developing responses to climate change in Sri Lanka. It includes the complete set of climate change vulnerability maps and pertinent data produced by the ADB-financed consulting team as part of Sri Lanka's NCCAS development process.

The following pages are organized into several sections, in line with the Sector Vulnerability Profiles, also produced as part of the NCCAS process:

- Urban Development, Human Settlements and Economic Infrastructure
  - Human Settlements
  - Transport
  - Tourism
- Water
  - Drinking Water
  - Irrigation
- Agriculture and Fisheries
  - Paddy
  - Plantations
  - Fishery
  - Livestock
- Health
  - Dengue
  - Dysentary
  - Leptospirosis
- Biodiversity and Ecosystem Services

Each subsection starts with a very brief introduction to the sector concerned. This is followed by the indicators used in the Sensitivity and Adaptive Capacity Indices used, as well as some key findings from analysis of the map on each facing page.

The data table following each map lists rankings and classifications of the DSDs as illustrated. A range of comparable data on physical characteristics, demographics, and sector-specific indicators for each DSD are also provided.

A wealth of additional data on the characteristics of specific DSDs can be found in the statistics released by the Department of Census and Statistics. District level data for all indicators included in this databook are available in Appendix B to allow for easy comparisons as required.

It must be noted that each map illustrates the potential vulnerability of one given sub-sector, to one particular exposure-type (i.e. sea level rise, floods, droughts, or landslides) based purely on historical data. Only exposure types considered relevant to a particular sub-sector are analyzed and illustrated.

Areas in white indicate that adequate comparable data was not available to perform the analysis to establish levels of vulnerability. Areas indicated as (no vulnerability) are DSDs eliminated from the indices either because they had insignificant exposure (historically) to the type of exposure concerned, or had minimal sensitivity to impacts on the sector being mapped (refer to methodology for further explanation).

DATA SOURCES:

The raw data sources used for the mapping exercise are given below and will be indicated by the respective letter in the data tables.

a - Calculated by the TA team

b - Census of Population and Housing -2001, Department of Census and Statistics

c - Household Income and Expenditure Survey - 2006/07 Department of Census and Statistics, http://www.statistics.gov.lk/poverty/PovertyIndicators.pdf

d - Census of Agriculture, 2002, Department of Census & Statistics

e - 1:50,000 Topographic Maps – Department of Survey

f - Sri Lanka Tourism Development Authority

g - Asweddumized Extent of Paddy by Mode of Irrigation and DS Division 2005/06 Maha, http://www.statistics.gov.lk/agriculture/Paddy%20Statistics/PaddyStats.htm Department of Census and Statistics

h - Department of Coast Conservation

i - Estimated Mid-year Population by Sex and District - 2010, Department of Census and Statistics, http://www.statistics.gov.lk/PopHouSat/Mid%20Year%20Population/midyearsex%20&district.pdf

h - Statistical Abstract – 2009, Department of Census & Statistics http://www.statistics.gov.lk/abstract2009/chapters/Chap1/AB1-1.pdf

j - Ministry of Health

k - Epidemiology Unit

l - Red List of Threatened Fauna and Flora of Sri Lanka , 2007

m - World Health Organization

Note: Some maps and statistics in this data book are different from those published in the Sector Vulnerability Profiles as some data have been updated.

URBAN DEVELOPMENT, HUMAN SETTLEMENTS AND ECONOMIC INFRASTRUCTURE

Human Settlements

As Sri Lanka moves into a trajectory of aggressive development, evaluating climate change vulnerability becomes important to identify potential threats to slated development goals. By doing so, any risks could be addressed early, ensuring that development targets can be achieved in a timely and sustainable manner.

Increase in the frequency and intensity of natural disasters will have immense socio-economic impacts on urban areas and human settlements. This makes climate change vulnerability a rather serious concern to be addressed in the development process. As 70% of Sri Lanka's population is expected to reside in urban settlements by 2030, it is crucial to ensure that such developments are adequately climate-proofed to ensure long term sustainability.

The main vulnerabilities associated with sea level rise on human settlements include inundation of land, saltwater intrusion, and increased frequency of storm surges along the coastal belt. Land, settlements, and coastal infrastructure including housing, roads, tourism infrastructure, etc, may be affected with substantial loss/damage of assets, disruption of economic opportunities and threats to the physical and social wellbeing of coastal communities, especially since the coastal zone accounts for about 43% of the nations GDP. Salt water intrusion will reduce the availability of fresh water for both drinking and irrigation, again undermining the viability of settlements in certain coastal areas and some downstream human settlements (including urban areas), well beyond the coastal zone.

With rising temperature, the need for adequate ventilation and cooling in residential and commercial buildings will increase. This can increase the energy demand at the national level and increase energy costs at the household level too. Health concerns in settlements are also expected to worsen.

Some of the implications associated with changes in rainfall regimes include increased frequency and duration of droughts, floods and increased rainfall intensity. Future urban development and planned expansion of human settlements could be highly vulnerable to drought, particularly if local economies are sustained by industries highly sensitive such as agriculture. Flood conditions will cause erosion and physical damage to infrastructure and public utilities imposing significant burdens on both individual households and the national economy. More frequent and severe flooding from flood prone rivers will exacerbate problems already faced by many communities in low-lying areas, especially where natural drainage paths and flood retention areas have been blocked or reclaimed. Increase in rainfall intensity may overwhelm urban storm-water drainage systems, resulting in more frequent flooding and damage to household and community level assets and infrastructure. The quantity and quality of water available for domestic use will also be affected.

The incidence of landslides caused by heavy and continuous rain is on the rise, and the resultant loss/damage to housing and related infrastructure, livelihoods and lives need to be anticipated. The central hill region of the country would be particularly affected by this hazard. Communities highly vulnerable to landslide risks may seek to relocate. The economic costs and social issues related to such potential migration could be significant.

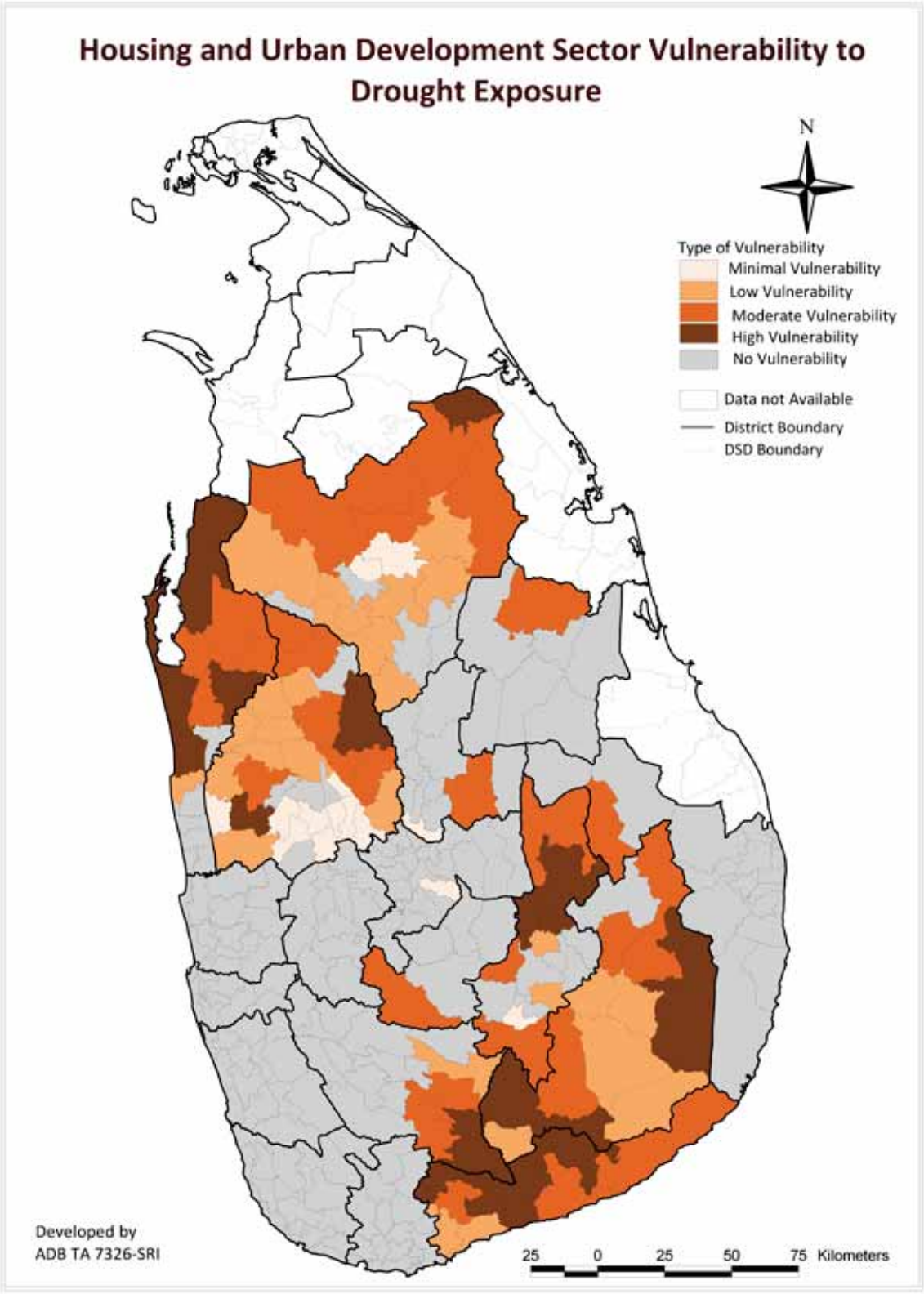
Housing and Urban Development Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Population density • Number of housing units • % of housing units classified as temporary structures	A composite of data (at DSD level) on: • percentage of people above the poverty line • percentage of people who have completed secondary education
Raw data source: 2001 National Census	

Some of the key findings include:

- Vulnerability of housing and human settlements to drought is widespread in the island, but more concentrated in the North-central and Southern regions of the country.
- 19 DS Divisions (DSDs) emerge as having settlements highly sensitive to drought. These DSDs combined, have:
  - A total population of 871,830 people, of whom 33.8% are below the poverty line.
  - A total housing stock of 219,231 housing units, of which 107,440 (49%) are of temporary construction.
  - 67.59% of their population (or 148,174 households) using wells and another 8.27% (18,138 households) using tube wells as their primary source of water.
- The three most vulnerable DSDs are Embilipitiya (Ratnapura District), Siyambalanduwa (Moneragala District), and Kalpitiya (Puttalam District).
  - Siyambalanduwa and Kalpitiya are highly sensitive as 68% of the housing stock in those DSD's comprise of temporary structures, while in Embilipitiya this figure is 38%.
  - Siyambalanduwa and Kalpitiya also have very high incidence of poverty (50% and 44%) among areas historically exposed to droughts.
  - Populations in Kalpitiya and Siyambalanduwa are heavily dependent on groundwater, with over 89% of the respective populations using wells or tube wells as their primary source of water.
  - Embilipitiya emerges as highly vulnerable because it has a relatively high population of 119,563, and a substantial volume of housing --29,027-- of which 11,000 are temporary structures. Embilipitiya is also among the DSDs that have historically recorded the highest exposure to droughts; 54% of the population at Embilipitiya depend on groundwater.
- A further 32 DSDs are in the moderately vulnerable category. They have:
  - A total population of about 1,494,810 people, of whom 388,416 are below the poverty line.
  - A total of 371,327 housing units of which 159,967 are of temporary construction.


Housing and Urban Development Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Housing and Urban Development Sector Vulnerability to Drought Exposure

High Moderate Low Minimal

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
2	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
3	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
4	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
5	Badulla	Rideemaliyadda	438.2808	45759	104	10681	0	45582	177	51.15	14.89
6	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
7	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
8	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
9	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
10	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
11	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
12	Badulla	Meegahakivula	108.7195	18650	172	4558	0	16316	2334	46.50	12.52
13	Puttalam	Vanathavilluwa	736.5317	16460	22	4024	0	16410	50	40.31	12.25
14	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
15	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
16	Hambantota	Katuwana	103.7065	41392	399	10025	0	62344	0	34.30	17.11
17	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
18	Hambantota	Angunukolapeles	174.0781	42426	244	10394	0	42426	0	33.00	16.83
19	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
20	Rathnapura	Kolonna	183.0319	43693	239	10661	0	38930	4763	37.70	14.65
21	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
22	Rathnapura	Godakawela	155.7512	69123	444	16962	0	57669	11454	38.20	20.31
23	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
24	Moneragala	Madulla	722.5206	28358	39	6678	0	28358	0	40.70	19.44
25	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
26	Puttalam	Mahakumbuk kadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
27	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
28	Badulla	Mahiyanganaya	598.4674	67301	112	16499	0	67301	0	38.57	20.02
29	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
30	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
31	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
32	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
33	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
34	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
35	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
36	Ampara	Padiyathalawa	386.8510	15971	41	3642	0	15971	0		11.66
37	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
38	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
39	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
40	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
41	Matale	Laggala-Pallegama	373.8370	12399	33	3305	0	12055	344	34.60	19.05
42	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.14	20.32
43	Hambantota	Weeraketiya	115.4094	37401	324	9208	0	55459	0	32.50	21.20
44	Moneragala	Medagama	241.1373	32467	135	7664	0	32467	0	30.20	14.89
45	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
46	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
47	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
48	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
49	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
50	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
51	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85

Accessibility			Housing Characteristics					DSD Name	Rank
Main Roads (km) [a & e]	Secondary Roads (km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
70	130	476	18027	10755	45	200	29027	Embilipitiya	1
52	23	551	3382	7282	43	50	10757	Siyambalanduwa	2
39	13	177	5722	8845	3091	225	17883	Kalpitiya	3
0	105	209	4117	4768	26	80	8991	Suriyawewa	4
50	82	414	4187	6390	6	70	10653	Rideemaliyadda	5
36	63	469	7349	11135	104	154	18742	Polpithigama	6
42	27	321	4968	3898	47	64	8977	Anamaduwa	7
31	182	287	9743	5250	49	59	15101	Ambalantota	8
30	46	291	6464	5356	1289	186	13295	Mundalama	9
26	42	294	5834	3324	637	68	9863	Arachchikattuwa	10
21	54	256	2574	3246	11	40	5871	Thanamalwila	11
18	18	136	1985	2497	7	25	4514	Meegahakivula	12
0	35	417	1405	2307	237	36	3985	Vanathavilluwa	13
29	54	296	2886	3891	37	66	6880	Lunugamvehera	14
0	38	235	2761	2425	182	40	5408	Padaviya	15
18	31	128	8455	6525	13	107	15100	Katuwana	16
37	68	288	13850	4264	289	137	18540	Kuliyapitiya West	17
0	149	272	5328	4936	13	56	10333	Angunukolapeles	18
14	42	181	2754	2508	2	47	5311	Kandaketiya	19
47	42	161	5068	5430	10	49	10557	Kolonna	20
36	31	343	2572	2789	79	44	5484	Karuwalagaswewa	21
45	45	175	8831	7753	26	121	16731	Godakawela	22
53	60	622	9789	4625	156	94	14664	Tissamaharama	23
32	46	226	2751	3844	15	45	6655	Madulla	24
20	27	162	3484	4069	23	58	7634	Weligepola	25
7	22	251	2075	2427	159	7	4668	Mahakumbuk kadawala	26
0	32	713	8771	6223	49	95	15138	Medirigiriya	27
57	102	602	8972	7254	31	154	16411	Mahiyanganaya	28
23	30	461	3876	4120	26	28	8050	Rambewa	29
25	38	198	5394	4208	86	44	9732	Ganewatta	30
26	106	397	7614	3083	83	52	10832	Hambantota	31
40	75	250	11022	8026	209	105	19362	Ibbagamuwa	32
58	15	321	6369	6072	65	92	12598	Wellawaya	33
41	70	423	6542	5846	63	122	12573	Galgamuwa	34
17	55	301	10830	7438	13	206	18487	Uva Paranagama	35
23	6	198	1088	2513	19	10	3630	Padiyathalawa	36
167	70	1149	33627	11560	81	883	46151	Ambagamuwa	37
72	8	550	4811	5037	28	114	9990	Medawachchiya	38
37	56	414	12480	5193	322	77	18072	Panduwasnuwara	39
48	43	548	3604	3663	33	73	7373	Horowpothana	40
26	36	255	1535	1680	15	17	3247	Laggala-Pallegama	41
28	90	537	7532	5216	57	114	12919	Nuwaragam Palatha Central	42
18	61	179	7136	6120	37	41	13334	Weeraketiya	43
21	42	144	3820	3718	20	53	7611	Medagama	44
0	46	349	3451	4214	31	31	7727	Giribawa	45
55	10	600	1926	2762	25	55	4768	Kebithigollewa	46
50	56	321	5544	4075	37	59	9715	Haldummulla	47
22	21	167	1680	1751	13	32	3476	Nawagattegama	48
38	18	210	9305	4989	1107	244	15645	Puttalam	49
34	74	337	7561	5856	43	32	13492	Mahawa	50
0	40	410	2300	2235	15	51	4601	Maha Vilachchiya	51

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
52	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
53	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
54	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
55	Moneragala	Moneragala	292.5414	42457	145	10071	0	39112	3345	29.30	23.23
56	Badulla	Soranathota	80.8879	22760	281	5667	0	18160	4600	34.24	17.35
57	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
58	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
59	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
60	Hambantota	Okewela	41.9560	18247	435	4266	0	18247	0	34.10	25.51
61	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
62	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
63	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
64	Moneragala	Buttala	735.5660	47324	64	11843	0	47324	0	21.20	22.01
65	Moneragala	Sewanagala	191.9569	36820	192	9221	0	35739	1081	19.30	20.35
66	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
67	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
68	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
69	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
70	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
71	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
72	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
73	Moneragala	Badalkumbura	235.9900	36784	156	9030	0	32733	4051	27.90	23.53
74	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
75	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
76	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
77	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
78	Hambantota	Beliatta	102.5034	52283	510	12630	0	52283	0	28.30	36.26
79	Moneragala	Katharagama	536.3836	16297	30	3875	0	16297	0	19.80	19.56
80	Anuradhapura	Ipalogama	142.4270	32933	231	8730	0	31992	941	17.41	25.86
81	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
82	Kurunegala	Polgahawela	97.3861	58762	603	14506	0	57940	822	22.91	35.64
83	Kandy	Pathahewaheta	83.5016	53843	645	13229	0	51531	2312	26.60	30.92
84	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57
85	Kurunegala	Narammala	108.3197	51244	473	13092	0	51244	0	21.40	33.36
86	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03
87	Matale	Ukuwela	77.9074	61568	790	14856	977	54983	5608	21.40	29.55
88	Kurunegala	Mawathagama	109.6233	56820	518	14191	0	55013	1807	24.92	33.95
89	Badulla	Haputhale	70.3267	50735	721	11565	3235	29372	18128	24.42	29.37
90	Kurunegala	Ududdawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
91	Kurunegala	Mallawapitiya	79.9307	46575	583	11574	0	46240	335	19.50	33.19
92	Kurunegala	Kurunegala	111.0680	88944	801	20292	28401	60369	174	14.70	44.87
93	Kurunegala	Weerambugedara	91.3110	30311	332	8085	0	30311	0	20.11	39.05
94	Anuradhapura	Nuwaragam Palatha East	90.6614	65671	724	14504	40030	25641	0	11.97	44.47

** except cart tracks and foot paths

Accessibility			Housing Characteristics					DSD Name	Rank
Main Roads (km) [a & e]	Secondary Roads (km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
38	63	317	12899	7736	97	118	20850	Rideegama	52
21	71	336	9921	4783	437	64	15205	Bingiriya	53
14	38	270	5708	2701	98	44	8551	Kobeigane	54
29	31	161	4946	4927	48	73	9994	Moneragala	55
10	44	138	3456	2009	7	53	5525	Soranathota	56
24	46	216	3301	4618	81	49	8049	Palagala	57
32	28	402	6324	6725	39	72	13160	Thalawa	58
53	34	409	4522	3918	21	42	8503	Kahatagasdigiliya	59
9	14	48	2302	1921	5	10	4238	Okewela	60
43	31	366	9407	5478	140	57	15082	Wariyapola	61
28	32	248	5775	3565	39	29	9408	Nikaweratiya	62
32	69	657	5934	5020	39	76	11069	Nochchiyagama	63
65	4	319	6223	5397	71	40	11731	Buttala	64
19	65	217	4363	4784	18	35	9200	Sewanagala	65
3	29	226	2709	2200	41	64	5014	Rasnayakapura	66
10	45	194	2543	2578	11	48	5180	Kotawehera	67
46	29	172	6834	3503	9	115	10461	Ella	68
20	29	208	3555	4474	21	19	8069	Galnewa	69
39	84	261	11711	6589	15	133	18448	Balangoda	70
36	102	208	10394	4002	108	63	14567	Tangalle	71
16	51	460	5441	4756	12	69	10278	Galenbidunuwawe	72
44	28	227	5210	3682	7	48	8947	Badalkumbura	73
38	175	503	21502	7004	686	161	29353	Pannala	74
24	30	182	2970	2406	17	17	5410	Ambanpola	75
34	7	272	4447	4819	53	80	9399	Thambuttegama	76
25	38	321	2733	3291	19	29	6072	Thirappane	77
26	40	114	7956	4246	63	57	12322	Beliatta	78
18	24	177	2563	1193	47	45	3848	Katharagama	79
25	40	154	4626	3879	37	34	8576	Ipalogama	80
25	28	112	9210	4076	951	60	14297	Chilaw	81
27	52	94	10591	3571	122	76	14360	Polgahawela	82
24	67	102	9031	3811	27	98	12967	Pathahewaheta	83
15	46	185	8318	3092	192	61	11663	Kuliyapitiya East	84
34	26	177	8909	3834	222	41	13006	Narammala	85
33	25	311	4011	2411	40	79	6541	Mihintale	86
37	45	99	9825	4512	12	92	14441	Ukuwela	87
34	16	171	10298	3558	70	100	14026	Mawathagama	88
21	53	134	8370	2616	10	268	11264	Haputhale	89
28	41	179	9244	2961	345	65	12615	Udubaddawa	90
20	40	83	8226	2994	65	80	11365	Mallawapitiya	91
33	61	142	15191	4242	183	329	19945	Kurunegala	92
20	30	122	5490	2317	109	42	7958	Weerambugedara	93
32	41	177	11744	2326	25	196	14291	Nuwaragam Palatha East	94

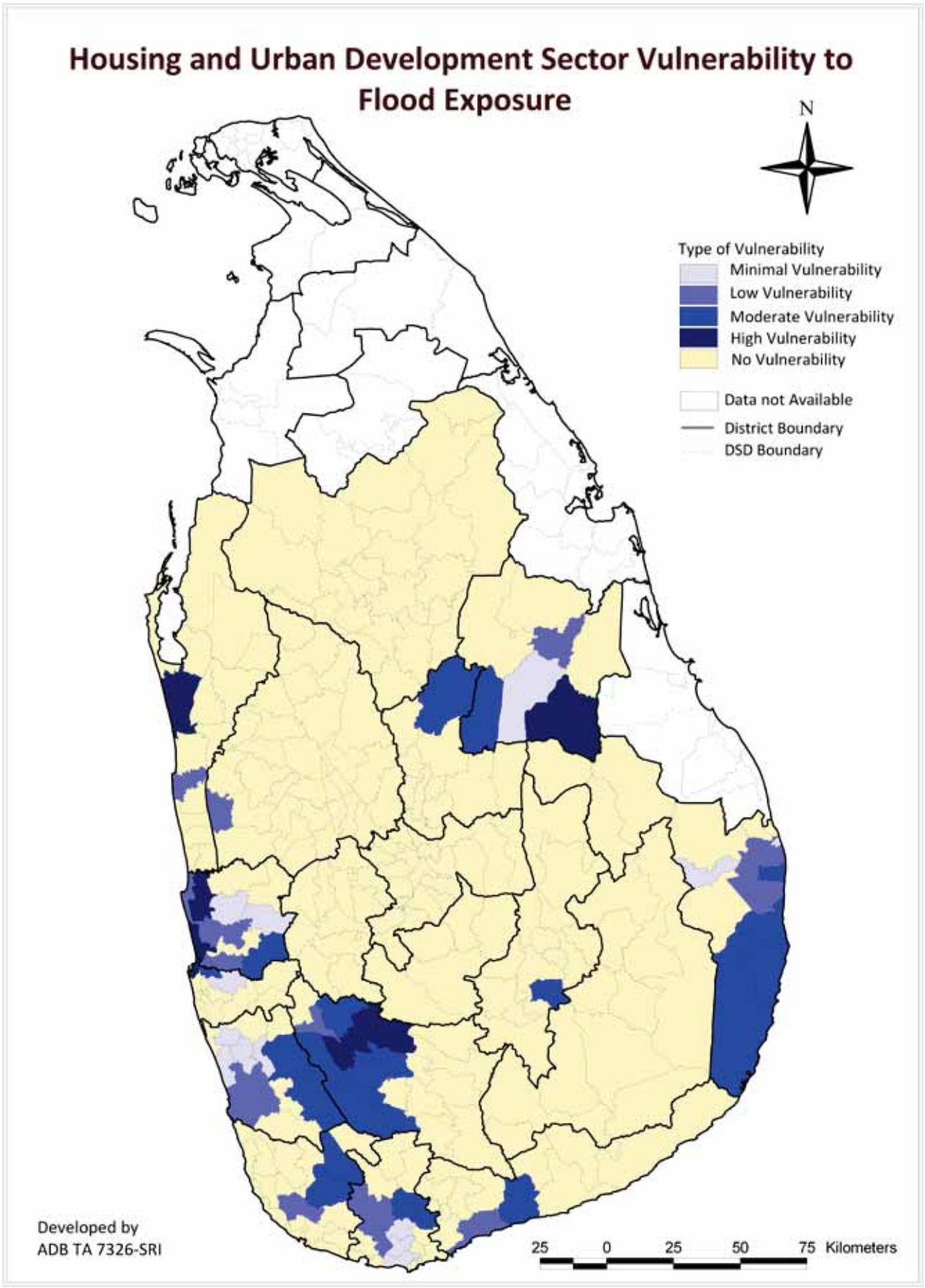
Housing and Urban Development Sector Vulnerability to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	**The Adaptive Capacity Index**
A composite of data (at DSD level) on: • Population density • Number of housing units • % of housing units classified as temporary structures	A composite of data (at DSD level) on: • percentage of people above the poverty line • percentage of people who have completed secondary education
Raw data source: 2001 National Census	

Some of the key findings include:

- Vulnerability of housing and human settlements to the expected increase in floods appears to be concentrated in the Western region of the country, although smaller pockets of high vulnerability are also seen elsewhere.
- 7 DSDs emerge as having settlements highly vulnerable to flood exposure. These DSDs combined have:
  - A population of 1,034,944, with poverty incidence of 13.3%, which is lower than the national average.
  - 214,473 housing units of which almost a quarter (53,330) are temporary structures.
  - 37% of their population (81,775 households) using wells as their primary source of water.
- Colombo (Colombo District) and Katana (Gampaha District) emerge as the two most vulnerable DSDs. These DSDs are home to 603,629 people living in 113,848 housing units. Colombo, the most vulnerable DSD, has the highest population density in the country.
- 21 additional DSDs emerge as having settlements that are moderately vulnerable to flood exposure. These DSDs combined have a population of 1,168,658 living in 276,442 housing units, over a third of which are temporary structures. 57.7% of these households use wells as their primary source of water.


Housing and Urban Development Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Housing and Urban Development Sector Vulnerability to Flood Exposure

High Moderate Low Minimal

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
2	Gampaha	Katana	124.9577	222683	1782	50765	73318	149365	0	7.70	41.14
3	Polonnaruwa	Dimbulagala	552.3964	63349	115	16757	0	63339	10	22.59	18.60
4	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
5	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
6	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
7	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
8	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
9	Rathnapura	Kalawana	384.7488	48669	126	11905	0	44632	4037	36.40	23.93
10	Matara	Mulatiyana	119.4139	46066	386	11169	0	45501	565	30.90	21.41
11	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
12	Rathnapura	Nivithigala	157.9051	59092	374	13989	0	47942	11150	32.80	17.57
13	Ampara	Pothuvil	271.8310	28480	105	6693	0	28480	0		13.45
14	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
15	Ampara	Lahugala	923.3049	7623	8	1888	0	7623	0		15.57
16	Rathnapura	Kuruwita	174.6734	85882	492	20460	0	80326	5556	28.90	23.57
17	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
18	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
19	Colombo	Kolonnawa	26.0388	161247	6193	35803	56396	104851	0	8.20	35.95
20	Polonnaruwa	Elahera	353.1772	39908	113	10446	0	39908	0	18.45	17.46
21	Galle	Thawalama	174.1470	31803	183	7710	0	30789	1014	29.50	19.99
22	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
23	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
24	Matara	Hakmana	49.6219	30201	609	7190	0	30201	0	32.00	29.15
25	Ampara	Thirukkovil	187.0859	23700	127	5427	0	23700	0		20.88
26	Ampara	Addalachchenai	56.9586	36020	632	7640	0	36020	0		17.64
27	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
28	Galle	Nagoda	174.6178	52414	300	13028	0	46707	5707	28.70	23.04
29	Ampara	Alayadiwembu	82.5912	22627	274	4956	0	22627	0		22.67
30	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58
31	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
32	Matara	Akuressa	148.6167	49806	335	11825	0	48508	1298	21.90	24.28
33	Gampaha	Kelaniya	21.9313	134364	6127	30272	29820	104544	0	6.90	41.85
34	Polonnaruwa	Lankapura	200.7756	33676	168	8611	0	33676	0	14.54	19.42
35	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
36	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
37	Matara	Malimbada	47.9781	31524	657	7577	0	31384	140	24.30	31.38
38	Ampara	Eragama	66.6480	11344	170	2632	0	11344	0		13.35
39	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
40	Gampaha	Biyagama	60.2668	161300	2676	36655	0	161300	0	11.30	41.68
41	Ampara	Sainthamarathu	3.0272	24114	7966	5144	24114	0	0		21.81
42	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
43	Kalutara	Mathugama	134.3624	73269	545	17604	0	66781	6488	29.40	28.65
44	Gampaha	Gampaha	90.6959	171040	1886	41357	9284	161756	0	9.90	43.27
45	Matara	Athuraliya	65.9339	30179	458	7039	0	29380	799	27.80	26.77
46	Kalutara	Dodangoda	112.8241	55052	488	13646	0	47970	7082	21.20	27.42
47	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
48	Galle	Baddegama	114.4507	68634	600	16761	0	66249	2385	21.70	30.17
49	Ampara	Samanthurai	123.0101	51510	419	11729	0	51510	0		20.13
50	Gampaha	Ja-Ela	61.4202	184666	3007	42975	30791	153875	0	7.80	44.60
51	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43

Accessibility		Housing Characteristics					DSD Name	Rank
Secondary Roads(km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
105	0	54588	8459	41	1930	65018	Colombo	1
116	203	40211	6295	901	1423	48830	Katana	2
34	455	6694	9738	105	132	16669	Dimbulagala	3
54	77	5614	2992	18	68	8692	Elapatha	4
46	291	6464	5356	1289	186	13295	Mundalama	5
52	350	18283	7606	37	326	26252	Rathnapura	6
94	47	29289	5548	180	700	35717	Wattala	7
44	142	4013	3242	20	35	7310	Ayagama	8
21	240	6603	5128	17	116	11864	Kalawana	9
36	143	7737	3330	4	46	11117	Mulatiyana	10
162	222	24870	6214	351	175	31610	Dompe	11
52	163	8155	5540	14	72	13781	Nivithigala	12
13	114	3468	2282	485	82	6317	Pothuvil	13
37	210	12187	7230	27	242	19686	Pelmadulla	14
14	321	613	1119	52	4	1788	Lahugala	15
71	237	14014	6029	58	99	20200	Kuruwita	16
101	242	10686	4446	45	164	15341	Bulathsinhala	17
182	287	9743	5250	49	59	15101	Ambalantota	18
76	21	27611	6307	125	406	34449	Kolonnawa	19
26	312	5381	4880	29	59	10349	Elahera	20
33	99	4620	3000	7	51	7678	Thawalama	21
44	273	7465	3924	17	99	11505	Palindanuwara	22
66	397	7092	7761	171	99	15123	Dambulla	23
13	53	4297	2746	19	27	7089	Hakmana	24
11	155	2618	1774	904	47	5343	Thirukkovil	25
30	71	5693	1154	409	99	7355	Addalachchenai	26
29	172	6834	3503	9	115	10461	Ella	27
43	300	9087	3711	27	150	12975	Nagoda	28
12	88	3106	953	677	80	4816	Alayadiwembu	29
31	70	4842	2671	23	42	7578	Kiriella	30
41	20	4962	433	199	76	5670	Ninthavur	31
24	154	8269	3386	32	44	11731	Akuressa	32
74	23	23196	4926	69	431	28622	Kelaniya	33
37	201	6153	2219	98	82	8552	Lankapura	34
57	52	26910	3558	417	333	31218	Negombo	35
28	112	9210	4076	951	60	14297	Chilaw	36
30	53	5722	1734	32	23	7511	Malimbada	37
13	108	1708	605	74	29	2416	Eragama	38
88	125	22392	5516	238	374	28520	Beruwala	39
132	69	29276	4501	175	803	34755	Biyagama	40
2	4	4651	193	41	33	4918	Sainthamarathu	41
102	208	10394	4002	108	63	14567	Tangalle	42
66	172	12860	4230	55	130	17275	Mathugama	43
87	141	32735	7491	179	238	40643	Gampaha	44
28	88	4796	2129	33	21	6979	Athuraliya	45
69	159	9969	3380	40	78	13467	Dodangoda	46
5	102	6414	599	228	56	7297	Akkaraipattu	47
39	230	12021	4449	79	109	16658	Baddegama	48
21	159	9279	1395	126	171	10971	Samanthurai	49
116	107	35929	4735	186	1013	41863	Ja-Ela	50
41	179	9244	2961	345	65	12615	Ududdawa	51

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
52	Matara	Kaburupitiya	59.7187	37347	625	9079	0	37347	0	24.90	31.28
53	Gampaha	Minuwangoda	133.2225	151661	1138	37683	7567	144084	10	12.50	38.36
54	Ampara	Ampara	139.2692	38166	274	8713	17957	20209	0		30.45
55	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
56	Gampaha	Attanagalla	154.3057	154967	1004	36838	0	154821	146	15.40	39.55
57	Polonnaruwa	Thamankaduwa	465.7376	74224	159	17920	0	73956	268	14.15	28.23
58	Kalutara	Millaniya	82.0638	44476	542	11035	0	43110	1366	16.90	30.71
59	Colombo	Kaduwela	87.7537	209251	2385	48849	0	209251	0	6.00	48.78
60	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
61	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
62	Kalutara	Madurawala	62.9158	29750	473	7552	0	27129	2621	18.60	34.30
63	Kalutara	Bandaragama	57.4085	86886	1513	20579	0	86886	0	8.20	37.31
64	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45

Accessibility		Housing Characteristics					DSD Name	Rank
Secondary Roads(km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
17	46	7026	1890	23	52	8991	Kaburupitiya	52
109	232	28524	7913	498	236	37171	Minuwangoda	53
28	262	5818	2758	21	71	8668	Ampara	54
11	52	5601	1748	21	34	7404	Thihagoda	55
98	201	27846	7974	339	274	36433	Attanagalla	56
61	351	13507	3948	75	199	17729	Thamankaduwa	57
64	129	8341	2446	64	59	10910	Millaniya	58
165	106	42647	4327	172	758	47904	Kaduwela	59
18	8	3045	236	110	21	3412	Karativu	60
83	126	25607	5009	206	322	31144	Kaluthara	61
65	58	5945	1454	28	31	7458	Madurawala	62
36	115	17367	2459	71	178	20075	Bandaragama	63
76	59	19444	3237	222	106	23009	Matara	64

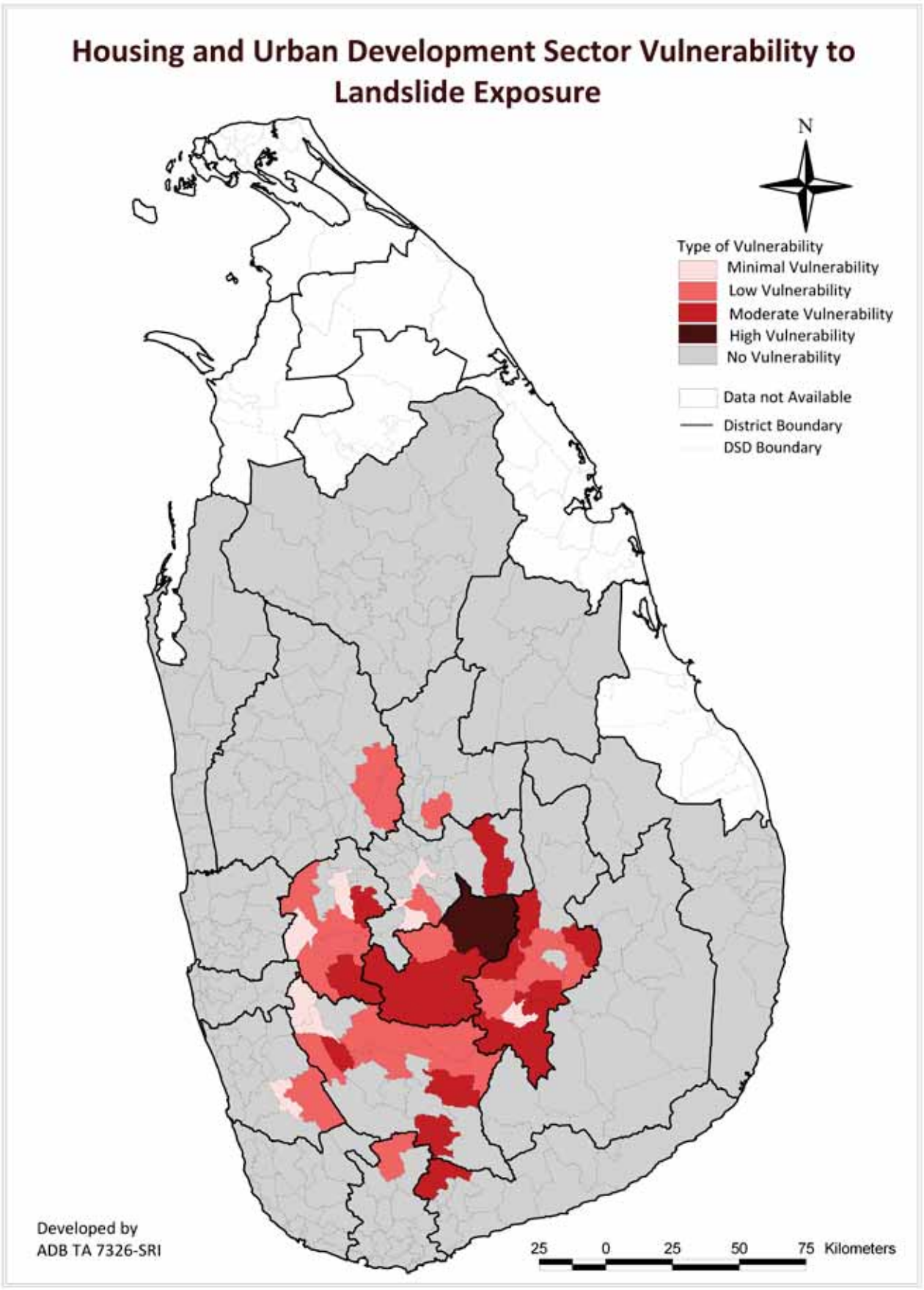
Housing and Urban Development Sector Vulnerability to Landslide Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	**The Adaptive Capacity Index**
A composite of data (at DSD level) on: • Population density • Number of housing units • % of housing units classified as temporary structures	A composite of data (at DSD level) on: • percentage of people above the poverty line • percentage of people who have completed secondary education
Raw data source: 2001 National Census	

Some of the key findings include:

- Vulnerability of housing and human settlements to the expected increase in landslides due to climate change is concentrated in the central hills of Sri Lanka.
- Walapane and Hanguranketha DSDs (both in the Nuwara Eliya District) emerge as having highly sensitive settlements to landslide exposure on their human settlements. These 2 DSDs have:
    - o A total population of 194,194 people, of whom 29.4% are below the poverty line.
    - o A total housing stock of 47,693 housing units, of which 19,715 (41.3%) are of temporary construction.
    - o The highest exposure to landslides, historically in terms of frequency and people affected.
- A further 15 DSDs are expected to be moderately vulnerable to landslides as a result of climate change. These DSDs combined have:
    - o A population of 969,660, of whom 275,276 (28.4%) are below the poverty line.
    - o 235,667 housing units of which 36.5% are temporary structures.


Housing and Urban Development Sector Vulnerability to Landslide Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Housing and Urban Development Sector Vulnerability to Landslide Exposure

High Moderate Low Minimal

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Nuwara Eliya	Walapane	321.5229	106434	331	26645	0	66727	39707	26.50	15.66
2	Nuwara Eliya	Hanguranketha	228.6220	87760	384	22524	0	74355	13405	34.60	19.18
3	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
4	Badulla	Lunugala	141.8095	33079	233	8260	0	14585	18494	38.82	13.78
5	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
6	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
7	Kegalle	Aranayaka	124.4190	66198	532	16850	0	64894	1304	36.10	29.31
8	Kegalle	Deraniyagala	222.0806	44735	201	11336	0	34377	10358	33.60	19.57
9	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
10	Rathnapura	Kolonna	183.0319	43693	239	10661	0	38930	4763	37.70	14.65
11	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
12	Nuwara Eliya	Nuwara Eliya	483.5716	208190	431	49385	28869	36922	142399	21.90	18.93
13	Badulla	Bandarawela	70.0596	60269	860	14379	7296	44049	8924	21.61	32.66
14	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
15	Hambantota	Katuwana	103.7065	41392	399	10025	0	62344	0	34.30	17.11
16	Kandy	Udadumbara	277.0667	22831	82	6001	0	21322	1509	37.50	17.35
17	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
18	Badulla	Passara	135.9205	49190	362	12245	0	29457	19733	31.88	19.27
19	Kegalle	Bulathkohupitiya	127.2471	45573	358	11729	0	37396	8177	32.50	22.74
20	Rathnapura	Imbulpe	255.2644	55546	218	14086	660	46388	8498	32.00	24.58
21	Badulla	Soranathota	80.8879	22760	281	5667	0	18160	4600	34.24	17.35
22	Badulla	Hali Ela	170.1437	87476	514	21835	0	58715	28761	34.58	24.29
23	Matara	Kotapola	179.3289	64012	357	15073	0	51875	12137	22.60	15.42
24	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
25	Nuwara Eliya	Kothmale	223.7228	97509	436	23841	0	58181	39328	22.30	19.01
26	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
27	Kegalle	Dehiovita	193.2396	73991	383	18460	0	62883	11108	29.30	24.21
28	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
29	Badulla	Welimada	193.9032	94399	487	22838	0	84180	10219	29.19	28.14
30	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
31	Kegalle	Yatiyanthota	178.0749	57239	321	14197	0	45071	12168	30.10	23.81
32	Matale	Rattota	105.2255	49382	469	13068	0	40015	9367	23.40	25.32
33	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
34	Kegalle	Warakapola	195.5200	106038	542	26503	0	103087	2951	26.00	30.93
35	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
36	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
37	Kandy	Doluwa	100.1685	45270	452	11651	0	37392	7878	26.50	21.04
38	Kegalle	Kegalle	109.0590	87637	804	21327	17139	68733	1765	26.70	37.80
39	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
40	Kegalle	Ruwanwella	138.6165	58892	425	14461	0	54679	4213	28.50	28.11
41	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58
42	Badulla	Haputhale	70.3267	50735	721	11565	3235	29372	18128	24.42	29.37
43	Kandy	Udapalatha	90.6003	86145	951	19936	24116	48242	13787	21.40	29.35
44	Kalutara	Agalawatta	89.7814	33962	378	8423	0	32768	1194	26.40	33.03
45	Kandy	Gangawata Korale	58.6941	160630	2737	33196	104252	54472	1906	10.10	48.49

** Included all other road types without Rail roads (Cart track, Foot path etc)

Accessibility			Housing Characteristics					DSD Name	Rank
Main Roads (km) [a & e]	Secondary Roads (km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
81	88	604	14602	10815	59	237	25713	Walapane	1
49	84	337	13376	8350	28	226	21980	Hanguranketha	2
14	42	181	2754	2508	2	47	5311	Kandaketiya	3
31	72	111	5048	2987	4	55	8094	Lunugala	4
0	54	77	5614	2992	18	68	8692	Elapatha	5
50	56	321	5544	4075	37	59	9715	Haldummulla	6
23	51	183	11064	5379	30	107	16580	Aranayaka	7
17	99	326	6533	4494	103	67	11197	Deraniyagala	8
17	55	301	10830	7438	13	206	18487	Uva Paranagama	9
47	42	161	5068	5430	10	49	10557	Kolonna	10
167	70	1149	33627	11560	81	883	46151	Ambagamuwa	11
143	124	1128	30512	15571	76	1638	47797	Nuwara Eliya	12
35	35	143	11274	2381	3	305	13963	Bandarawela	13
20	27	162	3484	4069	23	58	7634	Weligepola	14
18	31	128	8455	6525	13	107	15100	Katuwana	15
17	68	206	2939	2933	1	55	5928	Udadumbara	16
46	29	172	6834	3503	9	115	10461	Ella	17
48	55	173	8019	3735	10	112	11876	Passara	18
31	33	184	7708	3883	25	44	11660	Bulathkohupitiya	19
44	48	329	8363	5317	12	84	13776	Imbulpe	20
10	44	138	3456	2009	7	53	5525	Soranathota	21
49	66	456	15154	5794	19	192	21159	Hali Ela	22
32	50	126	9574	5258	15	97	14944	Kotapola	23
0	44	142	4013	3242	20	35	7310	Ayagama	24
90	86	548	14649	8322	56	218	23245	Kothmale	25
38	63	317	12899	7736	97	118	20850	Rideegama	26
40	68	311	12314	5726	117	161	18318	Dehiovita	27
58	52	350	18283	7606	37	326	26252	Rathnapura	28
70	67	243	15433	6454	15	282	22184	Welimada	29
28	37	210	12187	7230	27	242	19686	Pelmadulla	30
48	40	251	9512	4336	90	113	14051	Yatiyanthota	31
41	52	164	7462	5252	5	85	12804	Rattota	32
24	44	273	7465	3924	17	99	11505	Palindanuwara	33
45	97	223	17655	8139	206	258	26258	Warakapola	34
39	84	261	11711	6589	15	133	18448	Balangoda	35
40	75	250	11022	8026	209	105	19362	Ibbagamuwa	36
39	28	225	7702	3664	4	75	11445	Doluwa	37
36	74	105	15325	5452	86	176	21039	Kegalle	38
26	60	164	10969	4319	45	61	15394	Eheliyagoda	39
42	69	155	10402	3802	99	57	14360	Ruwanwella	40
24	31	70	4842	2671	23	42	7578	Kiriella	41
21	53	134	8370	2616	10	268	11264	Haputhale	42
47	50	204	14423	4793	23	203	19442	Udapalatha	43
6	40	86	6612	1627	13	64	8316	Agalawatta	44
44	100	44	28340	3395	16	496	32247	Gangawata Korale	45

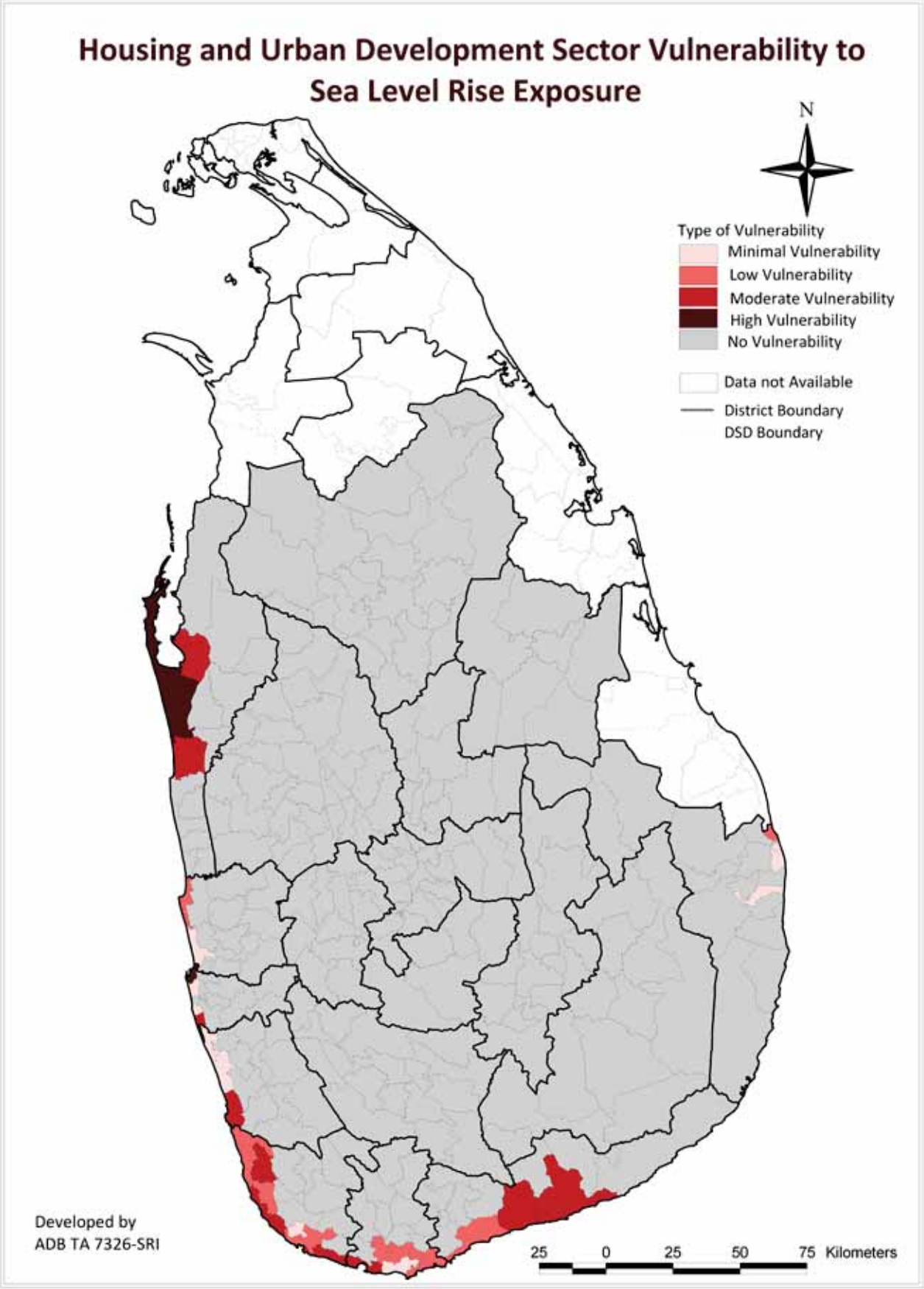
Housing and Urban Development Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	**The Adaptive Capacity Index**
A composite of data (at DSD level) on: • Population density • Number of housing units • % of housing units classified as temporary structures	A composite of data (at DSD level) on: • percentage of people above the poverty line • percentage of people who have completed secondary education
Raw data source: 2001 National Census	

Some of the key findings include:

- Vulnerability of housing and human settlements to sea level rise exposure appears to be highest in the Western and Southern regions of the island. Although "exposure" was high in the North and East, detailed vulnerability assessment of this region could not be done because of the lack of census data.
- Among the DSDs where data was available and could be mapped, Colombo (Colombo District), and Kalpitiya and Mundalama (both Puttalam District) show high levels of vulnerability. These 3 DSDs have:
  - o A population of 519,020 people, of which almost a 100,000 are below the poverty line.
  - o 96,196 housing units of which 29,422 are temporary structures.
- The housing stock in Kalpitiya and Mundalama comprise primarily of temporary structures (68% and 51% respectively). This is the worst situation among all coastal DSDs where data were available. These two DSDs are also heavily dependent on groundwater, as over 87% of their populations use wells or tube wells as their primary source of water.
- A further 10 DSDs emerge as being moderately vulnerable to sea level rise exposure. These DSDs have a total population of 822,814 living in 183,867 housing units. 28% of these homes are temporary structures.


Housing and Urban Development Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

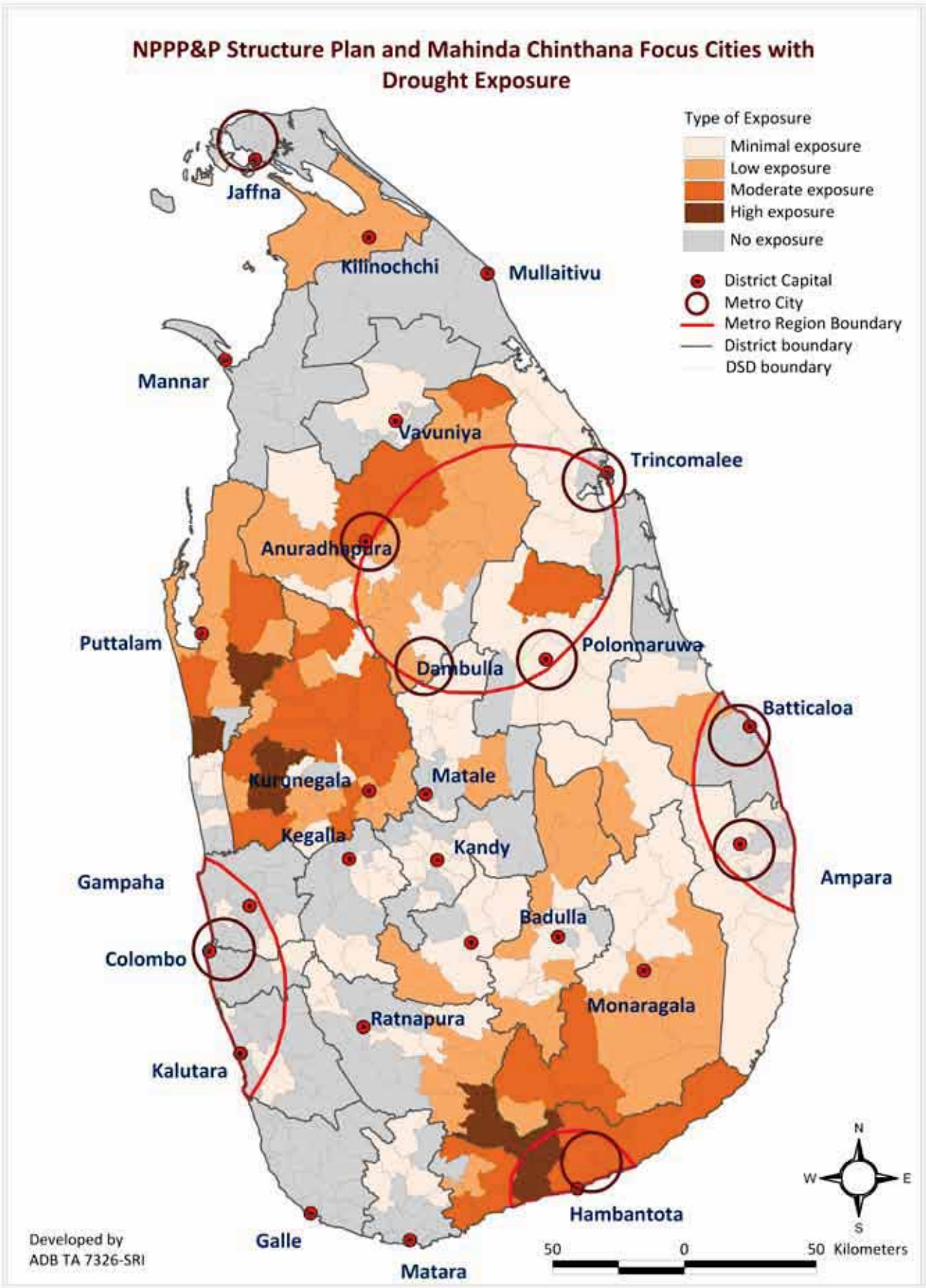
Housing and Urban Development Sector Vulnerability to Sea Level Rise Exposure

High Moderate Low Minimal

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
3	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
4	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
5	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
6	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
7	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
8	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
9	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
10	Galle	Karandeniya	88.0055	56128	638	14913	0	56128	0	21.90	20.63
11	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
12	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
13	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
14	Matara	Malimbada	47.9781	31524	657	7577	0	31384	140	24.30	31.38
15	Matara	Devinuwara	37.6183	44199	1175	9988	0	44199	0	20.90	26.80
16	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
17	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
18	Galle	Galle Four Gravets	23.7565	103246	4346	19425	90270	12976	0	19.30	39.96
19	Galle	Akmeemana	65.4509	63881	976	15110	0	63239	642	22.00	32.21
20	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
21	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
22	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
23	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
24	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
25	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87
26	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
27	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
28	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
29	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
30	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35
31	Galle	Bope-Poddala	29.1730	41612	1426	9732	0	41461	151	18.10	42.27
32	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
33	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
34	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
35	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88

** except cart track and foot paths

Accessibility			Housing Characteristics					DSD Name	Rank
Main Roads (km) [a & e]	Secondary Roads (km) [a & e]	Other Roads (km) [a & e] **	Permanent[b]	Semi-Permanent[b]	Improvised[b]	Not Classified[b]	Total Housing Units[b]		
39	13	177	5722	8845	3091	225	17883	Kalpitiya	1
11	105	0	54588	8459	41	1930	65018	Colombo	2
30	46	291	6464	5356	1289	186	13295	Mundalama	3
38	18	210	9305	4989	1107	244	15645	Puttalam	4
26	106	397	7614	3083	83	52	10832	Hambantota	5
31	182	287	9743	5250	49	59	15101	Ambalantota	6
21	62	66	9472	3308	384	72	13236	Habaraduwa	7
26	42	294	5834	3324	637	68	9863	Arachchikattuwa	8
18	48	53	10957	2942	329	94	14322	Weligama	9
23	32	219	10614	4134	27	64	14839	Karandeniya	10
32	60	80	16527	5211	322	185	22245	Hikkaduwa	11
17	73	2	30170	8344	175	575	39264	Moratuwa	12
19	88	125	22392	5516	238	374	28520	Beruwala	13
12	30	53	5722	1734	32	23	7511	Malimbada	14
14	17	52	7756	1826	110	36	9728	Devinuwara	15
34	57	52	26910	3558	417	333	31218	Negombo	16
36	102	208	10394	4002	108	63	14567	Tangalle	17
26	55	27	15798	2619	131	210	18758	Galle Four Gravets	18
19	57	112	10578	4067	179	63	14887	Akmeemana	19
21	50	121	12441	4274	66	92	16873	Ambalangoda	20
20	32	95	10961	3385	165	120	14631	Balapitiya	21
16	11	52	5601	1748	21	34	7404	Thihagoda	22
7	51	43	11813	1815	472	186	14286	Kalmunai	23
19	51	102	7295	3339	144	34	10812	Bentota	24
17	31	58	8668	2428	108	47	11251	Dickwella	25
7	41	20	4962	433	199	76	5670	Ninthavur	26
14	5	102	6414	599	228	56	7297	Akkaraipattu	27
48	83	126	25607	5009	206	322	31144	Kaluthara	28
6	18	8	3045	236	110	21	3412	Karativu	29
19	131	2	43115	4604	24	1793	49536	Thimbirigasyaya	30
12	30	47	7768	1674	66	37	9545	Bope-Poddala	31
26	76	59	19444	3237	222	106	23009	Matara	32
21	94	47	29289	5548	180	700	35717	Wattala	33
22	85	83	30644	4763	150	488	36045	Panadura	34
5	65	2	20677	2675	43	439	23834	Rathmalana	35


NPPP&P Structure Plan and Mahinda Chinthana Focus Cities with Drought Exposure
Type of Exposure
Minimal exposure
Low exposure
Moderate exposure
High exposure
No exposure
District Capital
Metro City
Metro Region Boundary
District boundary
DSD boundary
Jaffna
Kilinochchi
Mullaitivu
Mannar
Vavuniya
Trincomalee
Anuradhapura
Puttalam
Polonnaruwa
Dambulla
Batticaloa
Kurunegala
Matale
Kegalla
Kandy
Ampara
Gampaha
Badulla
Colombo
Monaragala
Ratnapura
Kalutara
Hambantota
Galle
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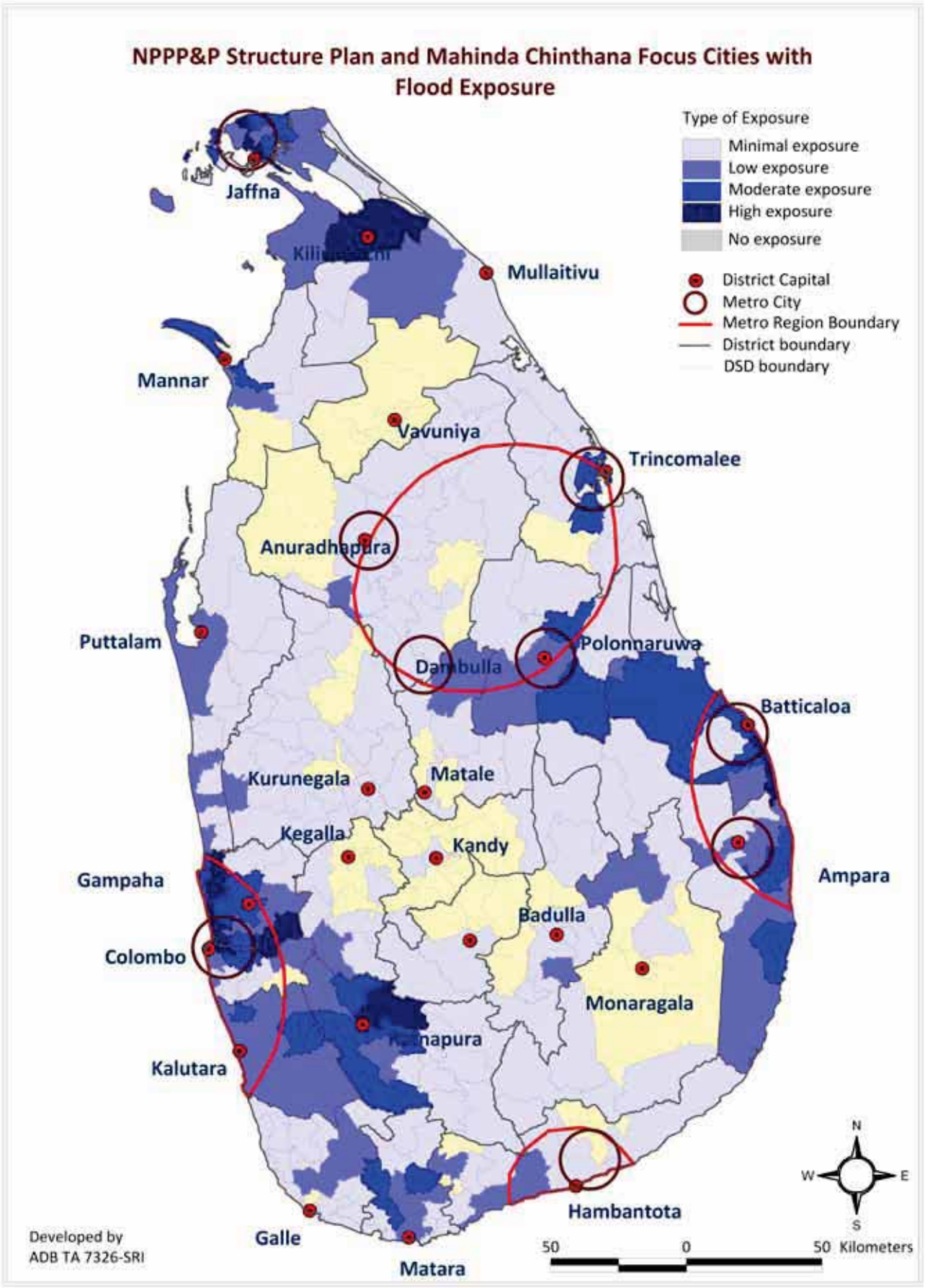
50 Kilometers
Developed by
ADB TA 7326-SRI


NPPP&P Structure Plan and Mahinda Chinthana Focus Cities with Flood Exposure
Type of Exposure
Minimal exposure
Low exposure
Moderate exposure
High exposure
No exposure
District Capital
Metro City
Metro Region Boundary
District boundary
DSD boundary
Jaffna
Mullaitivu
Mannar
Vavuniya
Trincomalee
Anuradhapura
Puttalam
Polonnaruwa
Batticaloa
Kurunegala
Matale
Kegalla
Kandy
Gampaha
Ampara
Badulla
Colombo
Monaragala
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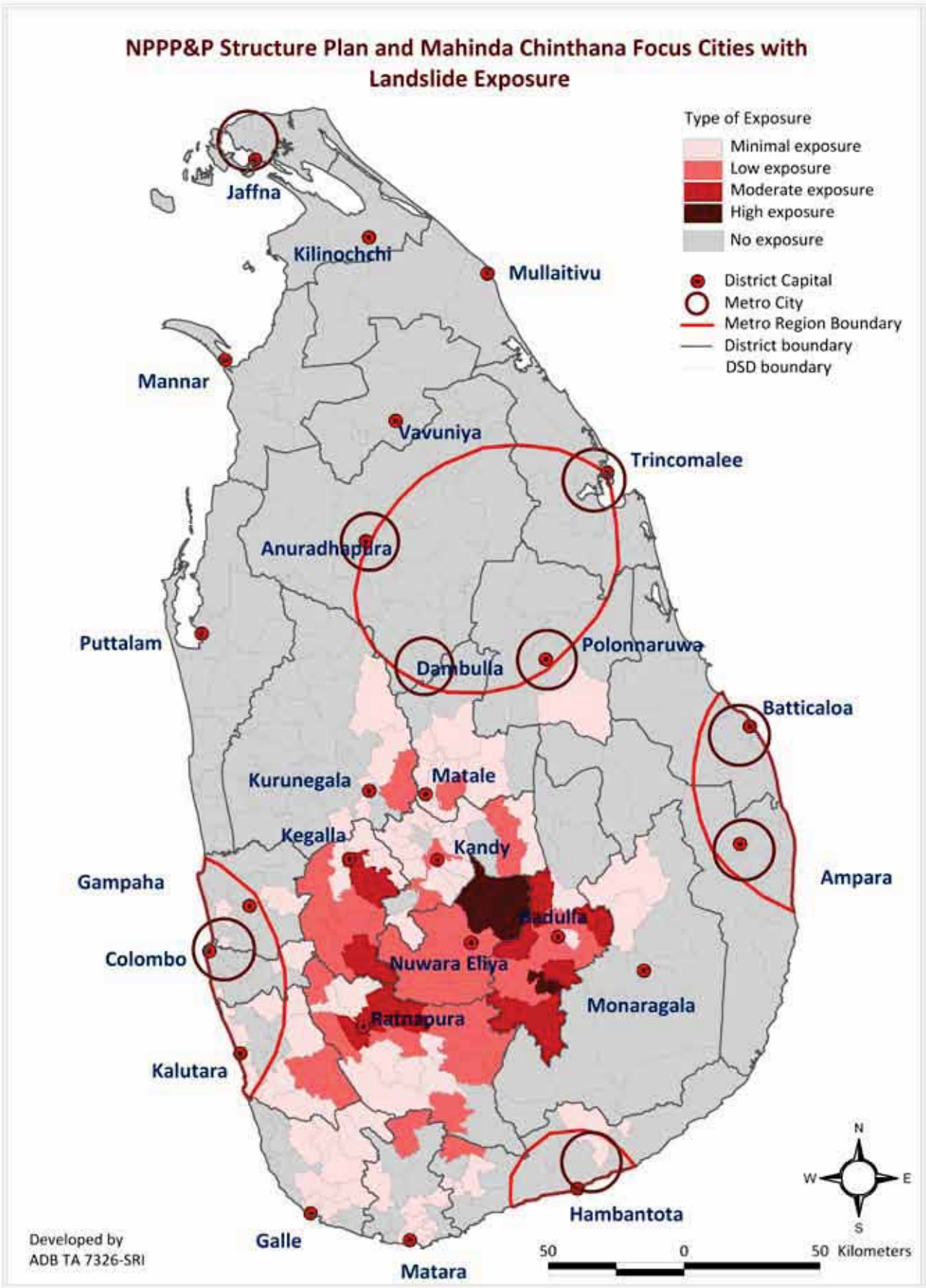
Developed by
ADB TA 7326-SRI


NPPP&P Structure Plan and Mahinda Chinthana Focus Cities with Landslide Exposure
Type of Exposure
Minimal exposure
Low exposure
Moderate exposure
High exposure
No exposure
District Capital
Metro City
Metro Region Boundary
District boundary
DSD boundary
Jaffna
Kilinochchi
Mullaitivu
Mannar
Vavuniya
Trincomalee
Anuradhapura
Puttalam
Polonnaruwa
Dambulla
Batticaloa
Kurunegala
Matale
Kegalla
Kandy
Gampaha
Ampara
Badulla
Colombo
Nuwara Eliya
Monaragala
Ratnapura
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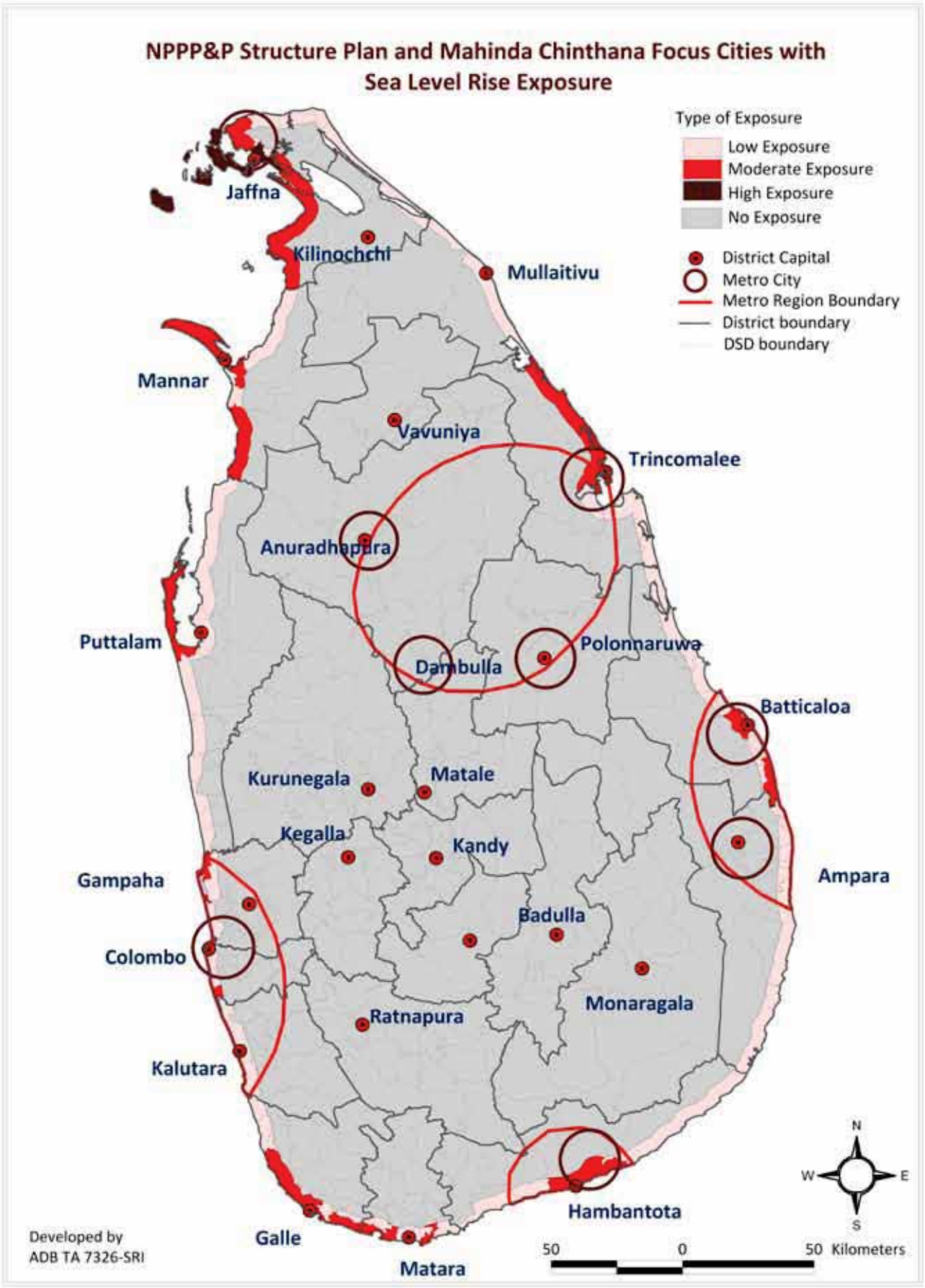
ADB TA 7326-SRI


NPPP&P Structure Plan and Mahinda Chinthana Focus Cities with Sea Level Rise Exposure
Type of Exposure
Low Exposure
Moderate Exposure
High Exposure
No Exposure
District Capital
Metro City
Metro Region Boundary
District boundary
DSD boundary
Jaffna
Kilinochchi
Mullaitivu
Mannar
Vavuniya
Trincomalee
Anuradhapura
Puttalam
Polonnaruwa
Dambulla
Batticaloa
Kurunegala
Matale
Kegalla
Kandy
Ampara
Gampaha
Badulla
Colombo
Monaragala
Ratnapura
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Developed by
ADB TA 7326-SRI

Transport Infrastructure

The main transport infrastructure in Sri Lanka consisting of roads, railways, airports and sea ports are vulnerable to some impact of climate change, especially as most have not been designed to accommodate the consequences.

There is a high probability that the island's coastal zone will be affected by sea level rise and will have to face associated inundation of land, saltwater intrusion, and increased frequency of storm surges. The coastal region (i.e. DSDs with a coastal boundary) contains nearly 20% of the island's Class A and B roads, and 33.3% of its railroads. This infrastructure is particularly vulnerable to sea level rise. Already, the railway lines from Colombo to the South have been affected by coastal erosion at some places. Sea level rise and more frequent and intense storm surges may also impact harbours and ports, and consequently on the service facilities they offer.

The main roads in the country are generally surfaced with pre-mix bitumen or asphalt. Increased ambient temperatures could cause surface flow of asphalt, distortion of road markings, and bleeding of bitumen making old road surfaces brittle. This may necessitate heavy investment on repair and maintenance. Similarly, increased rainfall intensity as a result of climate change could exacerbate flooding of roadways, particularly as many canals and drainage outfalls are already in disrepair or have been planned for lower rates of flow. Increased levels of damage to land-transportation infrastructure will cause direct costs for repair and rehabilitation, and also result in substantial losses across many other sectors that are dependent on the road and rail network. More details on the transport sector including information on vulnerability enhancing factors are provided in Section 1, Part II, *SVP on Urban Development, Human Settlements and Economic Infrastructure*.

For the purpose of the mapping exercise, only roads and railroads were considered for transport infrastructure vulnerability.

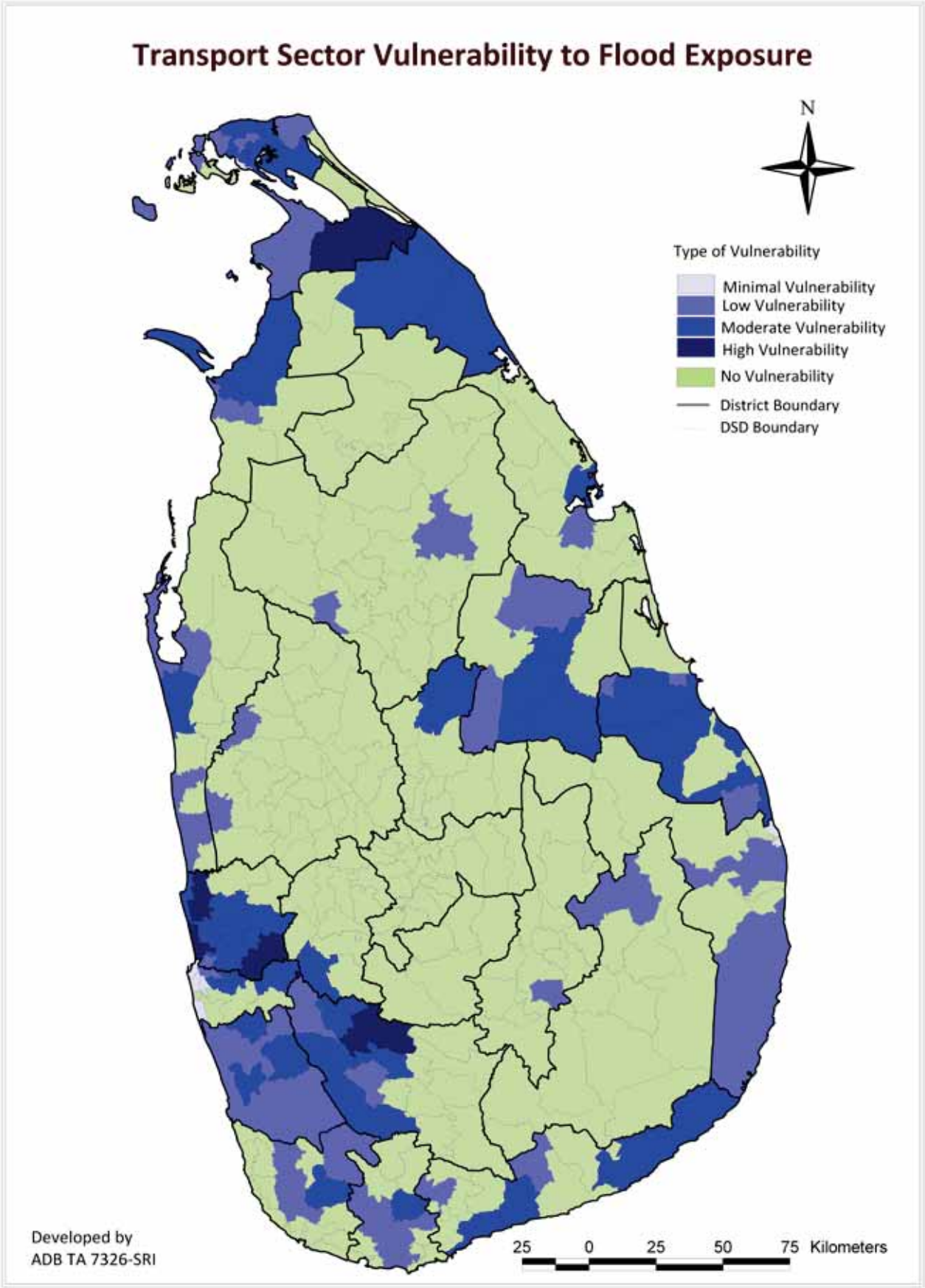
Vulnerability of the Transport Sector to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Length of main roads • Length of secondary roads • Length of rail	• Road density (length of main roads, secondary roads, and rail roads per square kilometre in each DSD.
Sources of data: 1:50,000 map sheets from Survey Dept. of Sri Lanka	

Some of the key findings include:

- Vulnerability of transport infrastructure to the expected increase in frequency and intensity of floods due to climate change is widespread and prevalent in many parts of the country.
- 5 DSDs emerge as being highly vulnerable in this regard to flood exposure. These DSDs combined have 235 km of main roads, 531 km of secondary roads and 33 km of railroads.
- A further 43 DSDs emerge as moderately vulnerable. These DSDs have 1,381 km of main roads, 2,906 km of secondary roads, and 278 km of railroads.
- Of the 13 DSDs in Gampaha District, 3 emerge as highly vulnerable, and another 7 emerge as moderately vulnerable, making this the most vulnerable district in this regard. Gampaha District has a population of 2,063,684 and a total of 475,847 housing units.


Transport Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Transport Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics			Demographics				
			Area (Sq. km)[a]	Total Population[b]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Gampaha	Katana	124.9577	222683	50765	73318	149365	0	7.70	41.14
2	Kilinochchi	Karachchi	621.6203							
3	Gampaha	Dompe	182.1586	130021	31962	0	130021	0	21.10	31.48
4	Gampaha	Wattala	57.6911	160127	36368	28740	131387	0	6.10	40.21
5	Rathnapura	Rathnapura	326.7894	115223	26549	45623	53219	16381	21.90	30.01
6	Hambantota	Ambalantota	211.3413	64361	15334	0	63426	935	33.30	21.36
7	Gampaha	Minuwangoda	133.2225	151661	37683	7567	144084	10	12.50	38.36
8	Gampaha	Gampaha	90.6959	171040	41357	9284	161756	0	9.90	43.27
9	Jaffna	Chavakachcheri	222.1802							
10	Colombo	Kaduwela	87.7537	209251	48849	0	209251	0	6.00	48.78
11	Mannar	Mannar Town	207.1215							
12	Gampaha	Attanagalla	154.3057	154967	36838	0	154821	146	15.40	39.55
13	Batticaloa	Eravur Pattu	612.3070							
14	Jaffna	Sandilipay	48.1604							
15	Batticaloa	Koralai Pattu (Valach.)	593.7964							
16	Gampaha	Ja-Ela	61.4202	184666	42975	30791	153875	0	7.80	44.60
17	Gampaha	Biyagama	60.2668	161300	36655	0	161300	0	11.30	41.68
18	Polonnaruwa	Dimbulagala	552.3964	63349	16757	0	63339	10	22.59	18.60
19	Batticaloa	Manmunai S. and Eruvilpattu	59.7398							
20	Polonnaruwa	Thamankaduwa	465.7376	74224	17920	0	73956	268	14.15	28.23
21	Kalutara	Bulathsinhala	209.4387	59787	15611	0	53331	6456	27.40	22.09
22	Hambantota	Tangalle	152.5016	62800	14981	10437	52363	0	27.10	30.04
23	Matale	Dambulla	455.1342	60976	15285	0	60959	17	19.90	23.88
24	Rathnapura	Elapatha	86.8547	36322	8828	0	34219	2103	40.10	22.39
25	Trincomalee	Town & Gravets	132.1348							
26	Jaffna	Tellipallai	61.1745							
27	Mulattivu	Pudukudi yirippu	1002.7885							
28	Rathnapura	Kuruwita	174.6734	85882	20460	0	80326	5556	28.90	23.57
29	Rathnapura	Kalawana	384.7488	48669	11905	0	44632	4037	36.40	23.93
30	Batticaloa	Manmunai South - West	150.8018							
31	Jaffna	Kopay	102.0337							
32	Matara	Mulatiyana	119.4139	46066	11169	0	45501	565	30.90	21.41
33	Hambantota	Tissamaharama	783.8008	60982	14829	0	60486	496	32.20	22.31
34	Jaffna	Nallur	34.4074							
35	Gampaha	Mahara	94.2988	176870	41639	0	176870	0	12.10	37.86
36	Mannar	Manthai West	609.4103							
37	Puttalam	Mundalama	241.4497	56294	13534	0	56294	0	41.08	14.73
38	Batticaloa	Manmunai North	66.4719							
39	Polonnaruwa	Lankapura	200.7756	33676	8611	0	33676	0	14.54	19.42
40	Kalutara	Horana	112.7795	90690	22048	9127	80042	1521	8.40	42.98
41	Rathnapura	Pelmadulla	144.8430	84966	19906	560	73480	10926	30.20	26.35
42	Colombo	Hanwella	145.8825	94001	22689	21601	66446	5954	14.20	34.61
43	Gampaha	Negombo	46.1424	144274	31915	121413	22861	0	7.10	30.04
44	Rathnapura	Ayagama	157.6893	28637	7357	0	25160	3477	33.70	21.37
45	Kegalle	Dehiovita	193.2396	73991	18460	0	62883	11108	29.30	24.21
46	Kalutara	Dodangoda	112.8241	55052	13646	0	47970	7082	21.20	27.42
47	Galle	Nagoda	174.6178	52414	13028	0	46707	5707	28.70	23.04
48	Mulattivu	Maritimepattu	756.2531							

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Main Roads[e]	Secondary Roads[e]	Rail Roads[e]	Other Roads (km)[e]	Road Density[a **]		
6612	81	24184.605	63.23	115.73	8.82	203.11	1.50	Katana	1
17720	419	135466.100	48.20	107.34	22.88	1082.67	0.29	Karachchi	2
20538	421	24053.187	43.80	162.09	0.00	221.70	1.13	Dompe	3
1498	140	12617.728	21.48	93.98	1.57	47.46	2.03	Wattala	4
13687	1504	65560.086	57.85	51.82	0.00	349.72	0.34	Rathnapura	5
19232	487	32504.363	31.20	181.67	0.00	286.51	1.01	Ambalantota	6
16148	192	16579.853	75.76	108.82	0.00	232.25	1.39	Minuwangoda	7
8491	77	13843.352	49.33	87.43	9.34	140.96	1.61	Gampaha	8
9385	452	45064.714	73.43	97.03	24.22	735.30	0.88	Chavakachcheri	9
3569	116	17999.317	13.71	164.97	0.00	106.49	2.04	Kaduwela	10
3295	162	47723.622	53.93	45.15	39.41	232.93	0.67	Mannar Town	11
15028	362	22739.604	70.85	97.53	9.57	200.87	1.15	Attanagalla	12
17962	192	133149.753	49.86	33.55	10.98	556.28	0.15	Eravur Pattu	13
2626	6	9268.638	16.13	59.79	0.00	120.95	1.58	Sandilipay	14
9983	36	136710.706	22.81	36.09	26.32	491.98	0.14	Koralai Pattu (Valach.)	15
2368	43	12766.210	23.02	116.36	16.19	107.31	2.53	Ja-Ela	16
4743	143	10006.193	15.31	131.69	0.00	69.28	2.44	Biyagama	17
35644	1737	99118.583	6.04	33.73	6.17	454.70	0.08	Dimbulagala	18
1807	17	12937.966	19.28	1.97	0.00	157.75	0.36	Manmunai S. and Eruvilpattu	19
18061	831	96193.798	33.55	61.08	16.95	350.91	0.24	Thamankaduwa	20
16292	1202	34259.229	0.00	100.96	0.00	241.60	0.48	Bulathsinhala	21
15465	1846	20372.810	36.36	102.18	0.00	207.50	0.91	Tangalle	22
22407	2218	87840.666	40.15	65.96	0.00	396.85	0.23	Dambulla	23
6328	529	14605.175	0.00	54.37	0.00	77.08	0.63	Elapatha	24
305	18	32328.078	41.39	55.10	17.00	292.57	0.86	Town & Gravets	25
986	0	14130.499	25.07	56.49	7.62	176.84	1.46	Tellipallai	26
11749	132	235912.454	77.96	16.43	24.22	1041.45	0.12	Pudukudi yirippu	27
10758	678	31726.570	19.07	70.77	0.00	237.14	0.51	Kuruwita	28
15589	2853	76631.119	57.06	20.86	0.00	239.91	0.20	Kalawana	29
8508	12	28743.799	10.93	30.58	0.00	203.58	0.28	Manmunai South - West	30
3396	115	21701.987	28.40	65.17	0.16	250.91	0.92	Kopay	31
14610	774	14123.700	23.12	35.64	0.00	143.30	0.49	Mulatiyana	32
17224	1145	175311.632	52.84	59.53	0.00	622.12	0.14	Tissamaharama	33
339	1	8162.207	16.84	55.56	9.90	122.07	2.39	Nallur	34
9971	157	13173.644	36.05	128.84	1.76	117.17	1.77	Mahara	35
4821	168	145598.950	37.64	74.55	0.00	341.19	0.18	Manthai West	36
10154	1183	48326.270	29.71	45.67	23.70	291.05	0.41	Mundalama	37
728	1	15696.499	13.42	31.91	6.61	106.38	0.78	Manmunai North	38
15584	449	33579.526	14.69	36.80	0.00	200.75	0.26	Lankapura	39
10552	227	17089.315	24.82	108.12	0.00	146.15	1.18	Horana	40
10329	619	24843.341	28.00	36.72	0.00	209.80	0.45	Pelmadulla	41
8158	544	27346.217	46.08	51.38	16.01	218.07	0.78	Hanwella	42
889	17	10495.985	33.87	56.62	11.53	51.57	2.21	Negombo	43
9520	1255	28190.717	0.00	44.31	0.00	142.38	0.28	Ayagama	44
10718	947	36085.352	39.69	68.35	0.00	310.71	0.56	Dehiovita	45
5882	207	21790.339	21.56	68.90	0.00	158.91	0.80	Dodangoda	46
17297	585	25266.828	38.88	43.22	0.00	300.05	0.47	Nagoda	47
7826	99	178948.455	33.16	64.14	0.00	794.53	0.13	Maritimepattu	48

Rank	District Name	DSD Name	Physical Characteristics			Demographics				
			Area (Sq. km)[a]	Total Population[b]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
49	Kalutara	Kaluthara	77.6779	141829	31857	37451	104378	0	12.50	38.35
50	Trincomalee	Kinniya	151.4995							
51	Galle	Baddegama	114.4507	68634	16761	0	66249	2385	21.70	30.17
52	Ampara	Pothuvil	271.8310	28480	6693	0	28480	0		13.45
53	Kalutara	Mathugama	134.3624	73269	17604	0	66781	6488	29.40	28.65
54	Kurunegala	Ududbaddawa	117.5985	48800	12669	0	48742	58	17.70	29.43
55	Hambantota	Suriyawewa	189.7447	35529	9031	0	35529	0	34.80	17.37
56	Kalutara	Palindanuwara	283.2330	45911	11597	0	40298	5613	30.70	22.88
57	Jaffna	Kayts	55.2340							
58	Moneragala	Bibila	483.5204	35490	8817	0	34818	672	26.00	17.05
59	Matara	Akuressa	148.6167	49806	11825	0	48508	1298	21.90	24.28
60	Badulla	Ella	109.3657	42894	10775	0	29156	13738	28.04	21.90
61	Kalutara	Walallawita	213.2047	50676	12793	0	47579	3097	31.40	25.28
62	Anuradhapura	Kahatagas digiliya	366.6055	33572	8619	0	33572	0	19.63	20.03
63	Kalutara	Beruwala	71.6785	144733	29635	33096	111637	0	22.10	28.20
64	Rathnapura	Nivithigala	157.9051	59092	13989	0	47942	11150	32.80	17.57
65	Kalutara	Millaniya	82.0638	44476	11035	0	43110	1366	16.90	30.71
66	Ampara	Ampara	139.2692	38166	8713	17957	20209	0		30.45
67	Kilinochchi	Poonakary	558.4683							
68	Matara	Malimbada	47.9781	31524	7577	0	31384	140	24.30	31.38
69	Ampara	Ninthavur	36.3016	24625	6235	0	24625	0		22.78
70	Kalutara	Bandaragama	57.4085	86886	20579	0	86886	0	8.20	37.31
71	Rathnapura	Eheliyagoda	141.9292	63870	15566	0	61593	2277	26.90	26.60
72	Galle	Thawalama	174.1470	31803	7710	0	30789	1014	29.50	19.99
73	Ampara	Addalachchenai	56.9586	36020	7640	0	36020	0		17.64
74	Rathnapura	Kiriella	79.5653	30881	7666	0	29748	1133	25.60	26.58
75	Jaffna	Karaveddy	90.6898							
76	Puttalam	Puttalam	178.4049	71091	15898	41761	29330	0	25.08	21.59
77	Ampara	Lahugala	923.3049	7623	1888	0	7623	0		15.57
78	Galle	Elpitiya	151.2593	60292	15049	0	58153	2139	22.70	26.49
79	Ampara	Thirukkovil	187.0859	23700	5427	0	23700	0		20.88
80	Polonnaruwa	Elahera	353.1772	39908	10446	0	39908	0	18.45	17.46
81	Ampara	Samanthurai	123.0101	51510	11729	0	51510	0		20.13
82	Colombo	Kolonnawa	26.0388	161247	35803	56396	104851	0	8.20	35.95
83	Puttalam	Chilaw	93.6034	59890	14448	23533	36357	0	20.11	21.74
84	Matara	Matara	56.1514	108238	23705	42663	65575	0	16.90	42.45
85	Batticaloa	Porativu Pattu	174.9570							
86	Kalutara	Madurawala	62.9158	29750	7552	0	27129	2621	18.60	34.30
87	Matara	Hakmana	49.6219	30201	7190	0	30201	0	32.00	29.15
88	Hambantota	Walasmulla	109.0750	39010	9443				33.40	23.96
89	Matara	Kaburupitiya	59.7187	37347	9079	0	37347	0	24.90	31.28
90	Puttalam	Kalpitiya	158.7548	81780	18185	0	81627	153	45.34	13.63
91	Puttalam	Nattandiya	75.3430	57686	14528	0	57535	151	15.54	28.96
92	Anuradhapura	Thambuttegama	111.4855	36524	9448	0	36524	0	19.05	22.52
93	Puttalam	Mahawewa	75.3055	48861	12600	0	48405	456	14.78	26.88
94	Mannar	Nanaddan	147.6092							
95	Kalutara	Ingiriya	94.0498	45726	11314	0	43590	2136	17.40	26.56
96	Polonnaruwa	Medirigiriya	570.3679	57899	15189	0	57899	0	13.37	14.73
97	Kalutara	Agalawatta	89.7814	33962	8423	0	32768	1194	26.40	33.03
98	Jaffna	Chankanai	48.0547							
99		Koralai P.W. (Oddamavadi)	39.1499							
100	Matara	Athuraliya	65.9339	30179	7039	0	29380	799	27.80	26.77
101	Ampara	Eragama	66.6480	11344	2632	0	11344	0		13.35
102	Gampaha	Kelaniya	21.9313	134364	30272	29820	104544	0	6.90	41.85
103	Jaffna	Uduvil	32.3749							
104	Galle	Neluwa	152.2868	27501	6445	0	27251	250	33.40	16.54

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Main Roads	Secondary Roads[e]	Rail Roads[e]	Other Roads (km)[e]	Road Density[a] **		
5288	235	13671.544	48.12	82.86	12.76	125.56	1.85	Kaluthara	49
2380	26	35030.188	15.25	7.39	0.00	288.57	0.15	Kinniya	50
15827	690	11764.261	46.49	38.74	0.00	229.68	0.74	Baddegama	51
3781	51	63338.632	28.18	13.13	0.00	114.07	0.15	Pothuvil	52
8883	619	23699.538	38.53	65.72	0.00	172.38	0.78	Mathugama	53
12883	173	16003.109	27.98	41.10	0.00	178.57	0.59	Ududbaddawa	54
17182	1105	28599.743	0.00	105.24	0.00	208.99	0.55	Suriyawewa	55
15808	2009	52171.122	24.30	43.94	0.00	272.90	0.24	Palindanuwara	56
2177	1	11470.561	10.85	51.68	0.00	205.44	1.13	Kayts	57
13890	1322	104268.005	45.73	38.14	0.00	235.22	0.17	Bibila	58
11959	593	24171.836	26.20	23.61	0.00	153.91	0.34	Akuressa	59
3924	524	22576.736	45.96	28.57	13.24	171.56	0.80	Ella	60
18416	1700	32567.808	32.11	54.42	0.00	239.56	0.41	Walallawita	61
16808	1198	72583.820	53.29	34.14	0.08	408.95	0.24	Kahatagas digiliya	62
6334	377	11001.073	18.87	88.49	13.57	125.38	1.69	Beruwala	63
8266	855	29898.032	20.80	52.45	0.00	163.10	0.46	Nivithigala	64
7087	226	12965.324	5.60	64.00	0.00	129.33	0.85	Millaniya	65
7808	800	25806.026	40.70	28.38	0.00	262.10	0.50	Ampara	66
8314	254	129431.960	53.24	5.54	0.00	693.10	0.11	Poonakary	67
5631	135	6089.610	11.54	30.04	0.00	52.51	0.87	Malimbada	68
4650	1	4319.288	7.34	41.07	0.00	20.46	1.33	Ninthavur	69
4220	150	9815.890	22.58	36.41	0.00	115.02	1.03	Bandaragama	70
10422	639	24010.328	26.32	59.66	0.00	164.22	0.61	Eheliyagoda	71
15974	1032	26026.489	34.91	32.90	0.00	98.89	0.39	Thawalama	72
4981	30	9063.721	8.22	29.90	0.00	70.64	0.67	Addalachchenai	73
7472	483	11705.932	24.37	30.63	0.00	69.61	0.69	Kiriella	74
2868	16	19525.858	25.27	48.44	0.00	135.45	0.81	Karaveddy	75
5189	965	37930.636	38.46	17.79	19.14	209.65	0.42	Puttalam	76
4668	234	223250.691	19.50	13.58	0.00	321.23	0.04	Lahugala	77
18602	1040	17734.834	30.76	46.66	0.00	225.02	0.51	Elpitiya	78
3218	4	43007.751	20.43	11.45	0.00	155.45	0.17	Thirukkovil	79
16695	938	69638.639	6.05	26.09	0.00	312.27	0.09	Elahera	80
11201	2	19193.342	27.26	20.52	0.00	158.81	0.39	Samanthurai	81
770	32	5632.309	8.98	75.75	5.70	21.33	3.47	Kolonnawa	82
7252	316	15561.806	24.88	28.40	13.29	111.79	0.71	Chilaw	83
3948	133	9794.253	26.38	75.77	4.76	59.07	1.90	Matara	84
9812	59	33361.652	20.23	17.78	0.00	354.83	0.22	Porativu Pattu	85
4409	274	10863.781	0.00	64.64	0.00	57.52	1.03	Madurawala	86
8445	196	3620.786	23.43	12.62	0.00	53.02	0.73	Hakmana	87
15179	631	11142.899	14.62	49.30	0.00	122.45	0.59	Walasmulla	88
8089	223	6444.750	20.99	16.95	0.00	46.37	0.64	Kaburupitiya	89
8480	265	30484.011	38.53	12.62	0.00	177.43	0.32	Kalpitiya	90
7597	71	10949.595	22.56	58.39	7.42	150.60	1.17	Nattandiya	91
13844	240	13464.567	34.43	7.14	14.56	272.48	0.50	Thambuttegama	92
5354	56	13198.323	15.00	55.51	5.10	123.92	1.00	Mahawewa	93
8591	64	27819.887	12.02	14.14	18.99	166.95	0.31	Nanaddan	94
6464	552	16224.130	21.97	32.86	0.00	129.62	0.58	Ingiriya	95
25240	1544	114156.408	0.00	32.23	7.22	712.58	0.07	Medirigiriya	96
8113	716	13356.368	6.12	39.88	0.00	86.36	0.51	Agalawatta	97
2405	2	9467.527	21.75	31.71	0.00	134.16	1.11	Chankanai	98
2018	2	7654.124	7.23	21.79	8.38	29.50	0.54	Koralai P.W. (Oddamavadi)	99
6707	382	9203.549	8.52	28.26	0.00	87.76	0.56	Athuraliya	100
2878	2	13589.023	21.54	12.66	0.00	107.55	0.51	Eragama	101
472	17	4930.320	14.79	73.91	5.21	22.90	4.28	Kelaniya	102
1356	1	6642.972	8.69	37.16	4.47	96.52	1.55	Uduvil	103
15570	886	21174.734	17.68	14.46	0.00	99.04	0.21	Neluwa	104

Rank	District Name	DSD Name	Physical Characteristics			Demographics				
			Area (Sq. km)[a]	Total Population[b]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
105	Kalutara	Panadura	45.0310	163492	37245	33514	129978	0	7.40	40.07
106	Matara	Thihagoda	50.9425	30909	7529	0	30909	0	27.20	30.07
107	Kurunegala	Rasnayakapura	125.8909	18814	5071	0	18678	136	23.00	20.46
108	Jaffna	Delft	47.4332							
109	Jaffna	Point Pedro	36.9669							
110	Puttalam	Wennappuwa	40.9400	70817	18180	0	70487	330	14.88	25.79
111	Galle	Welivitiya-Divithura	54.9823	26599	6622	0	25059	1540	25.50	23.29
112	Ampara	Kalmunai	19.6568	70465	15821	70465	0	0		28.44
113	Ampara	Karativu	8.9392	16365	3641	0	16365	0		28.99
114	Colombo	Colombo	17.8538	380946	70735	380946	0	0	12.10	32.53
115	Colombo	Sri Jayawardana pura Kotte	16.5150	116366	25822	116366	0	0	2.70	55.07
116	Colombo	Moratuwa	19.2051	177563	41282	177563	0	0	10.30	40.58
117	Colombo	Thimbirigasyaya	22.3754	266154	52397	266154	0	0	4.40	49.35
118	Colombo	Rathmalana	13.1472	108716	25013	108716	0	0	4.20	47.88
119	Jaffna	Jaffna	10.6967							

** except cart tracks and foot paths

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Main Roads [e]	Secondary Roads [e]	Rail Roads [e]	Other Roads (km) [e]	Road Density [a **]		
2001	68	9058.369	21.56	84.84	8.16	82.70	2.54	Panadura	105
6608	118	5862.125	15.94	10.96	0.00	52.46	0.53	Thihagoda	106
9723	2099	19286.197	3.48	29.43	0.00	226.36	0.26	Rasnayakapura	107
614	35	11071.946	0.00	37.11	0.00	107.61	0.78	Delft	108
1111	6	8017.695	18.93	28.42	0.00	94.57	1.28	Point Pedro	109
2494	39	7583.446	13.84	58.14	10.82	93.56	2.02	Wennappuwa	110
7271	306	6009.376	8.90	26.45	0.00	133.71	0.64	Welivitiya-Divithura	111
0	0	4857.293	6.86	50.62	0.00	43.02	2.92	Kalmunai	112
796	2	1410.914	5.54	17.57	0.00	7.79	2.59	Karativu	113
0	0	4411.760	11.45	105.21	21.00	0.18	7.71	Colombo	114
0	0	4080.936	4.63	72.65	3.42	1.48	4.89	Sri Jayawardanapura Kotte	115
0	26	4719.672	17.05	72.98	10.69	2.21	5.24	Moratuwa	116
0	0	5529.063	18.55	131.50	14.36	1.97	7.35	Thimbirigasyaya	117
0	0	3248.735	5.00	65.36	7.94	1.98	5.96	Rathmalana	118
65	12	2566.207	12.04	59.60	4.84	23.64	7.15	Jaffna	119

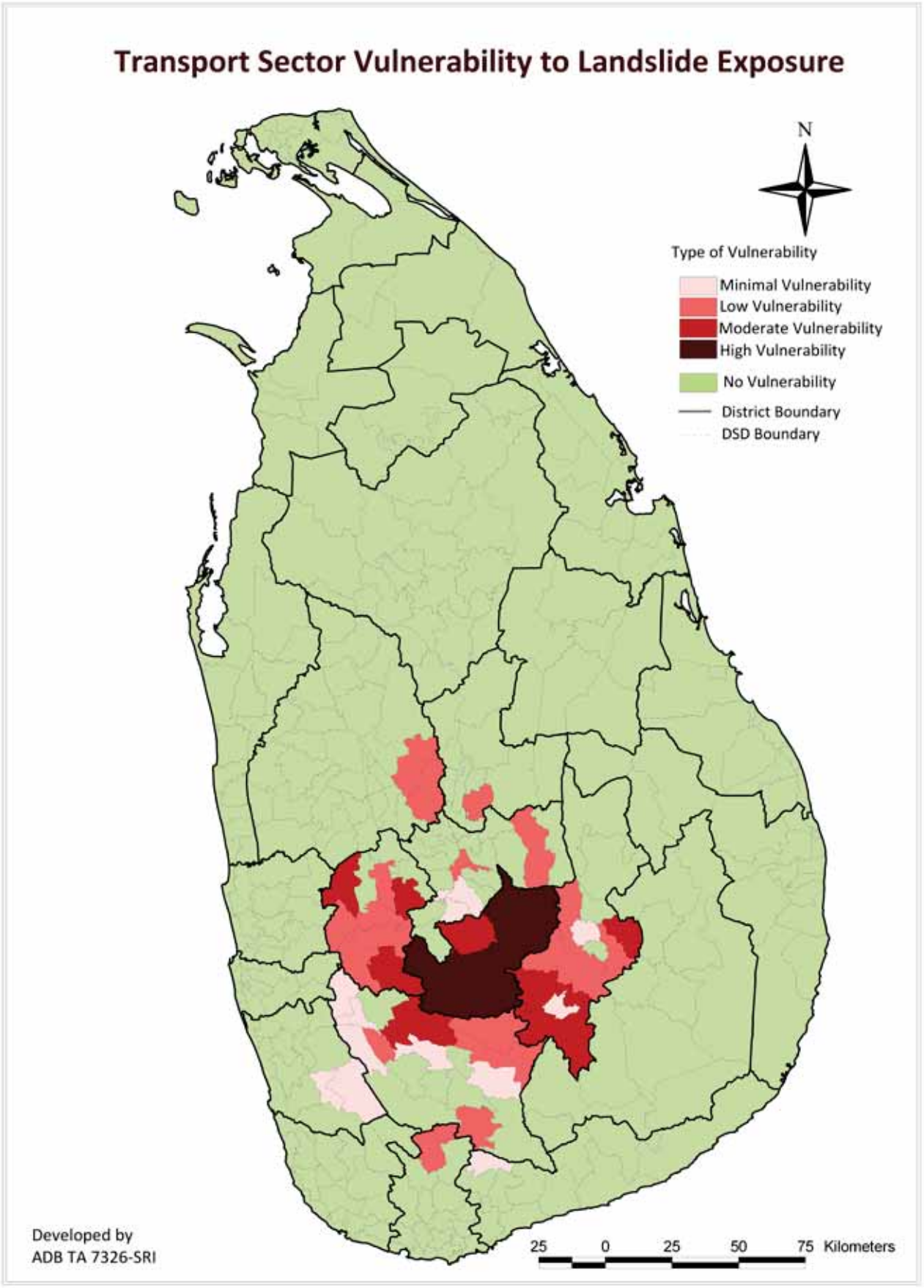
Vulnerability of the Transport Sector to Landslide Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Length of main roads • Length of secondary roads • Length of rail	• Road density (length of main roads, secondary roads, and rail roads per square kilometre in each DSD.
Sources of data: 1:50,000 map sheets from Survey Dept. of Sri Lanka	

Some of the key findings include:

- Vulnerability of transport infrastructure to landslides is expected increase in frequency and intensity and is focused mainly in the central hills.
- The four highly vulnerable DSDs that emerge from the analysis in this regard are all in the Nuwara Eliya District. These DSDs have 439 km of main roads, 366 km of secondary roads, and 66 km of railroads.
- Within the Nuwara Eliya District, the Nuwara Eliya DSD alone has 46.7 km of railroads.
- 9 DSDs fall into the moderately vulnerable category, and collectively have 419 km of main roads, 615 km of secondary roads, and 28 km of railroads.


Transport Sector Vulnerability to Landslide Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Transport Sector Vulnerability to Landslide Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Nuwara Eliya	Walapane	321.5229	106434	331	26645	0	66727	39707	26.50	15.66
2	Nuwara Eliya	Nuwara Eliya	483.5716	208190	431	49385	28869	36922	142399	21.90	18.93
3	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
4	Nuwara Eliya	Hanguranketha	228.6220	87760	384	22524	0	74355	13405	34.60	19.18
5	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
6	Badulla	Bandarawela	70.0596	60269	860	14379	7296	44049	8924	21.61	32.66
7	Badulla	Lunugala	141.8095	33079	233	8260	0	14585	18494	38.82	13.78
8	Kegalle	Deraniyagala	222.0806	44735	201	11336	0	34377	10358	33.60	19.57
9	Nuwara Eliya	Kothmale	223.7228	97509	436	23841	0	58181	39328	22.30	19.01
10	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
11	Badulla	Welimada	193.9032	94399	487	22838	0	84180	10219	29.19	28.14
12	Kegalle	Aranayaka	124.4190	66198	532	16850	0	64894	1304	36.10	29.31
13	Kegalle	Warakapola	195.5200	106038	542	26503	0	103087	2951	26.00	30.93
14	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
15	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
16	Badulla	Hali Ela	170.1437	87476	514	21835	0	58715	28761	34.58	24.29
17	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
18	Kegalle	Kegalle	109.0590	87637	804	21327	17139	68733	1765	26.70	37.80
19	Badulla	Passara	135.9205	49190	362	12245	0	29457	19733	31.88	19.27
20	Rathnapura	Imbulpe	255.2644	55546	218	14086	660	46388	8498	32.00	24.58
21	Kegalle	Dehiovita	193.2396	73991	383	18460	0	62883	11108	29.30	24.21
22	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
23	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
24	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
25	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
26	Kegalle	Ruwanwella	138.6165	58892	425	14461	0	54679	4213	28.50	28.11
27	Kegalle	Yatiyanthota	178.0749	57239	321	14197	0	45071	12168	30.10	23.81
28	Matara	Kotapola	179.3289	64012	357	15073	0	51875	12137	22.60	15.42
29	Kegalle	Bulathkohupitiya	127.2471	45573	358	11729	0	37396	8177	32.50	22.74
30	Matale	Rattota	105.2255	49382	469	13068	0	40015	9367	23.40	25.32
31	Kandy	Gangawata Korale	58.6941	160630	2737	33196	104252	54472	1906	10.10	48.49
32	Kandy	Udadumbara	277.0667	22831	82	6001	0	21322	1509	37.50	17.35
33	Rathnapura	Kolonna	183.0319	43693	239	10661	0	38930	4763	37.70	14.65
34	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
35	Kandy	Udapalatha	90.6003	86145	951	19936	24116	48242	13787	21.40	29.35
36	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
37	Badulla	Haputhale	70.3267	50735	721	11565	3235	29372	18128	24.42	29.37
38	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
39	Hambantota	Katuwana	103.7065	41392	399	10025	0	62344	0	34.30	17.11
40	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
41	Kandy	Doluwa	100.1685	45270	452	11651	0	37392	7878	26.50	21.04
42	Badulla	Soranathota	80.8879	22760	281	5667	0	18160	4600	34.24	17.35
43	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
44	Kalutara	Agalawatta	89.7814	33962	378	8423	0	32768	1194	26.40	33.03
45	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58

** Not considering other roads

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Main Roads[e]	Secondary Roads[e]	Rail Roads[e]	Other Roads (km)[e]	Road Density[a] **		
14588	1800	63061.710	80.71	87.65	0.00	603.54	0.52	Walapane	1
3201	58	116233.668	142.53	124.28	46.69	1128.37	0.65	Nuwara Eliya	2
6636	785	113143.835	167.25	69.72	19.61	1148.92	0.53	Ambagamuwa	3
15713	1063	39717.508	48.51	83.90	0.00	336.82	0.58	Hanguranketha	4
7817	2144	92587.227	49.72	56.43	0.00	321.31	0.26	Haldummulla	5
3397	347	13568.033	34.72	35.27	10.43	143.18	1.15	Bandarawela	6
3286	609	31146.756	31.41	72.02	0.00	111.47	0.73	Lunugala	7
9068	1172	44637.099	17.48	98.77	0.00	326.11	0.52	Deraniyagala	8
10275	894	44113.894	90.02	85.76	0.00	547.92	0.79	Kothmale	9
13687	1504	65560.086	57.85	51.82	0.00	349.72	0.34	Rathnapura	10
13340	205	34369.327	69.89	67.07	17.84	243.47	0.80	Welimada	11
12715	310	17719.472	23.29	51.45	0.00	182.66	0.60	Aranayaka	12
19215	608	28490.839	44.93	96.65	0.00	223.46	0.72	Warakapola	13
6328	529	14605.175	0.00	54.37	0.00	77.08	0.63	Elapatha	14
3924	524	22576.736	45.96	28.57	13.24	171.56	0.80	Ella	15
8278	814	32951.244	48.91	65.88	11.31	456.20	0.74	Hali Ela	16
13208	1569	52968.986	38.78	83.62	0.00	260.98	0.45	Balangoda	17
11129	321	15498.956	35.59	73.68	0.00	104.81	1.00	Kegalle	18
5303	889	27394.565	47.54	54.79	0.00	173.29	0.75	Passara	19
10523	1663	50890.955	43.53	47.57	0.00	328.90	0.36	Imbulpe	20
10718	947	36085.352	39.69	68.35	0.00	310.71	0.56	Dehiovita	21
6757	981	29975.243	13.97	42.24	0.00	180.78	0.37	Kandaketiya	22
13010	322	20590.887	17.45	54.90	0.00	301.20	0.53	Uva Paranagama	23
21146	516	32574.410	40.44	75.41	0.00	249.93	0.53	Ibbagamuwa	24
23601	860	30530.380	38.46	63.02	0.00	317.44	0.46	Rideegama	25
12004	725	21523.745	41.63	68.78	0.00	154.97	0.80	Ruwanwella	26
7957	818	35228.090	47.70	40.16	0.00	250.65	0.49	Yatiyanthota	27
11602	312	32398.968	31.72	49.95	0.00	125.74	0.46	Kotapola	28
7532	497	23414.313	31.21	33.10	0.00	183.85	0.51	Bulathkohupitiya	29
6670	364	18967.687	40.52	51.80	0.00	164.37	0.88	Rattota	30
2190	222	12091.582	43.71	100.48	11.81	44.06	2.66	Gangawata Korale	31
9919	1867	56678.392	16.68	68.12	0.00	205.86	0.31	Udadumbara	32
13366	2560	29301.996	46.73	41.51	0.00	161.37	0.48	Kolonna	33
10422	639	24010.328	26.32	59.66	0.00	164.22	0.61	Eheliyagoda	34
5485	347	16555.725	47.24	50.35	5.51	204.49	1.14	Udapalatha	35
15808	2009	52171.122	24.30	43.94	0.00	272.90	0.24	Palindanuwara	36
2120	198	15060.030	21.37	52.60	13.31	133.91	1.24	Haputhale	37
10329	619	24843.341	28.00	36.72	0.00	209.80	0.45	Pelmadulla	38
13335	938	11353.332	18.48	30.54	0.00	127.78	0.47	Katuwana	39
12565	1232	36495.627	20.22	27.27	0.00	162.44	0.23	Weligepola	40
5796	907	18049.082	39.01	28.21	0.00	224.91	0.67	Doluwa	41
3999	746	15242.744	10.22	43.91	0.00	137.70	0.67	Soranathota	42
9520	1255	28190.717	0.00	44.31	0.00	142.38	0.28	Ayagama	43
8113	716	13356.368	6.12	39.88	0.00	86.36	0.51	Agalawatta	44
7472	483	11705.932	24.37	30.63	0.00	69.61	0.69	Kiriella	45

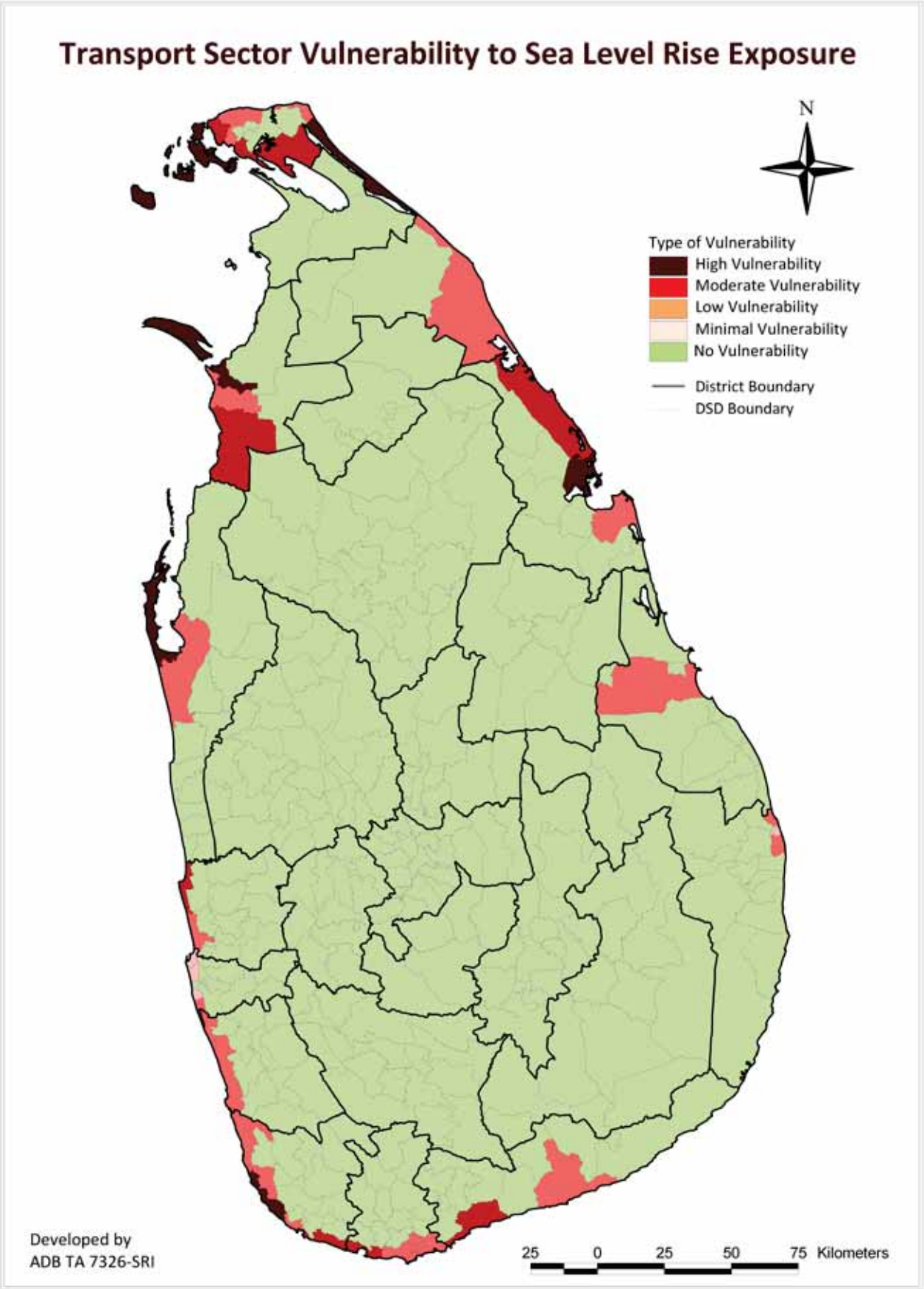
Vulnerability of the Transport Sector to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Length of main roads within 500m from shoreline • Length of secondary roads within 500m of shoreline • Length of railroads within 500m of shoreline	• Road density (length of main roads, secondary roads, and rail roads per square kilometre in each DSD.
Sources of data: 1:50,000 map sheets from Survey Dept. of Sri Lanka	

Some of the key findings include:

- Vulnerability of the transport sector to sea level rise impacts due to climate change is highest in the Northern and South-western coastal region of the island. The impact of sea level rise could be critical to national development as a substantial segment of our national transportation network runs parallel to the coastline.
- 8 DSDs emerge as being highly vulnerable based on the analysis. These DSDs combined have 117 km of main roads, 183 km of secondary roads, and 38 km of railroads all within 500 m from the coastline.
- The 10 DSDs that fall in the moderately vulnerable category together have another 75 km of main roads, 143 km of secondary roads, and 24 km of railroads, again within 500 m from the coastline.
- Of the 14 DSDs in Jaffna District, 4 are highly vulnerable, while another 4 are moderately vulnerable making it one of the most vulnerable districts overall. Jaffna is an area where substantial investments are expected to be expended over the next few years.


Transport Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
High Vulnerability
Moderate Vulnerability
Low Vulnerability
Minimal Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Transport Sector Vulnerability to Sealevel Rise Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Jaffna	Velanai	85.4797								
2	Trincomalee	Town & Gravets	132.1348								
3	Jaffna	Delft	47.4332								
4	Jaffna	Kayts	55.2340								
5	Mannar	Mannar Town	207.1215								
6	Jaffna	Maruthnkerny	135.0921								
7	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
8	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
9	Trincomalee	Kuchaveli	434.4600								
10	Jaffna	Jaffna	10.6967								
11	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
12	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
13	Jaffna	Chankanai	48.0547								
14	Jaffna	Chavakachcheri	222.1802								
15	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
16	Jaffna	Nallur	34.4074								
17	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
18	Mannar	Musalai	478.8201								
19	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
20	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
21	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
22	Jaffna	Point Pedro	36.9669								
23	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
24	Jaffna	Tellipallai	61.1745								
25	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
26	Matara	Devinuwara	37.6183	44199	1175	9988	0	44199	0	20.90	26.80
27	Mulattivu	Maritimepattu	756.2531								
28	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
29	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
30	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
31	Galle	Galle Four Gravets	23.7565	103246	4346	19425	90270	12976	0	19.30	39.96
32	Batticaloa	Koralai Pattu (Valach.)	593.7964								
33	Trincomalee	Muttur	194.6406								
34	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
35	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
36	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
37	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87
38	Mannar	Nanaddan	147.6092								
39	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
40	Jaffna	Sandilipay	48.1604								
41	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
42	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
43	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
44	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
45	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88
46	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35

** Not considering other roads

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Main Roads[e]	Secondary Roads[e]	Rail Roads[e]	Other Roads (km)[e]	Road Density[a] **		
893	10	20219.397	21.94	26.88	0.00	157.30	0.98	Velanai	1
305	18	32328.078	17.70	42.98	8.43	98.75	0.86	Town & Gravets	2
614	35	11071.946	0.00	14.19	0.00	34.87	0.78	Delft	3
2177	1	11470.561	5.92	23.60	0.00	94.43	1.13	Kayts	4
3295	162	47723.622	19.04	13.00	5.69	52.53	0.67	Mannar Town	5
770	15	32596.854	0.00	50.60	0.00	63.09	0.49	Maruthnkerny	6
6512	300	9520.874	25.57	7.81	23.88	11.30	1.76	Hikkaduwa	7
8480	265	30484.011	27.25	4.10	0.00	67.53	0.32	Kalpitiya	8
1399	6	105951.968	0.00	34.60	0.00	121.82	0.17	Kuchaveli	9
65	12	2566.207	5.94	26.02	0.56	9.94	7.15	Jaffna	10
6562	209	5465.181	16.75	12.37	14.71	15.39	2.03	Habaraduwa	11
4315	111	6235.785	16.43	8.35	7.75	13.94	1.89	Weligama	12
2405	2	9467.527	7.18	2.16	0.00	20.87	1.11	Chankanai	13
9385	452	45064.714	9.73	9.45	0.58	95.40	0.88	Chavakachcheri	14
889	17	10495.985	12.09	18.91	0.00	12.44	2.21	Negombo	15
339	1	8162.207	1.38	3.64	0.88	20.46	2.39	Nallur	16
15465	1846	20372.810	5.99	20.46	0.00	14.56	0.91	Tangalle	17
358	45	117915.553	0.00	7.13	0.00	12.01	0.10	Musalai	18
5288	235	13671.544	5.95	11.41	11.55	7.57	1.85	Kaluthara	19
9087	1059	73618.859	8.12	2.95	0.00	18.17	0.39	Hambantota	20
6334	377	11001.073	8.54	10.49	6.94	14.36	1.69	Beruwala	21
1111	6	8017.695	12.64	6.48	0.00	23.78	1.28	Point Pedro	22
5189	965	37930.636	3.97	5.03	2.32	11.46	0.42	Puttalam	23
986	0	14130.499	15.83	4.33	1.68	14.81	1.46	Tellipallai	24
7227	93	6165.164	11.70	3.84	5.23	13.70	1.21	Balapitiya	25
3860	153	5282.647	4.04	6.15	0.00	3.29	0.84	Devinuwara	26
7826	99	178948.455	0.00	9.86	0.00	81.11	0.13	Maritimepattu	27
1498	140	12617.728	5.31	19.89	0.00	2.86	2.03	Wattala	28
10154	1183	48326.270	0.00	11.07	0.00	6.88	0.41	Mundalama	29
8597	240	9037.489	7.18	2.91	7.27	3.56	1.08	Bentota	30
1564	71	4235.335	12.58	12.59	3.32	5.17	3.83	Galle Four Gravets	31
9983	36	136710.706	0.00	4.59	0.00	10.12	0.14	Koralai Pattu (Valach.)	32
5562	23	42511.549	2.66	4.05	0.00	39.24	0.25	Muttur	33
3948	133	9794.253	7.04	10.78	0.00	7.20	1.90	Matara	34
0	26	4719.672	12.32	18.38	9.92	1.96	5.24	Moratuwa	35
10933	128	6297.275	3.36	2.32	0.91	1.56	1.03	Ambalangoda	36
6411	260	5923.599	7.71	1.48	0.00	8.90	0.96	Dickwella	37
8591	64	27819.887	0.00	0.78	3.44	12.14	0.31	Nanaddan	38
2001	68	9058.369	6.99	7.77	7.73	13.85	2.54	Panadura	39
2626	6	9268.638	5.77	1.56	0.00	9.79	1.58	Sandilipay	40
4650	1	4319.288	0.00	9.87	0.00	0.10	1.33	Ninthavur	41
0	0	4857.293	0.00	20.13	0.00	8.51	2.92	Kalmunai	42
796	2	1410.914	0.00	6.60	0.00		2.59	Karativu	43
0	0	4411.760	3.76	30.99	5.79		7.71	Colombo	44
0	0	3248.735	1.63	16.97	6.58		5.96	Rathmalana	45
0	0	5529.063	7.06	22.18	6.56		7.35	Thimbirigasyaya	46

Tourism

Tourism has been recognized as a high priority area capable of effectively driving the country's economic development. The Government's vision is to make Sri Lanka the most sought after tourist destination in South Asia. Tourism development in Sri Lanka has occurred in pockets throughout the country over the last several decades, but over 62% of the tourist hotels and about 41% of guesthouses/hotel rooms in the country are in the coastal zone. The main tourist areas on the coast were located in the Colombo City and Greater Colombo, the South-west coast, and the East coast. The country's positioning as a tourist destination, however, over the last decade has been shifting to a more diversified product base, with increasing emphasis on nature and cultural tourism inland. Nevertheless, the coastline will remain the focus of most major planned tourism developments in the foreseeable future, particularly considering the unexploited potential of the North and East which were effectively not marketed for the last 30 years.

The tourist industry in the coastal region would be heavily exposed to potential risks from sea level rise, storm surges and related coastal flooding. In these areas, tourist hotels are concentrated along the beach, where setbacks may not be adequate to address sea level rise, or are not adequately enforced to ensure safety from storms and hurricanes. Left unaddressed, this could result in loss of assets, tourism revenue, and employment opportunities as climate change impacts worsen. The impacts of more frequent storms can accelerate coastal erosion and cause flooding and loss of prime land too. Areas with a concentration of tourism related infrastructure at present, as well as other areas projected for tourism development, are vulnerable.

Rising ocean temperatures and changing weather patterns could have substantial impacts on Sri Lanka's coastal habitats that underpin Sri Lanka's tourism product. Changing temperatures may negatively impact terrestrial forest cover, and the flora and fauna they contain, diminishing Sri Lanka's appeal to eco-tourists as a biodiversity hotspot. Energy consumption in the tourist industry may increase, as cooling requirements will increase with rising ambient temperatures.

Other climate change related natural disasters affecting the tourism industry include floods and landslides. Disruption of transportation networks due to these natural disasters can significantly impact the tourism sector when mobility is reduced periodically. In addition, areas affected by natural hazards frequently may be avoided by tourists. More details on climate change vulnerabilities to the tourism sector including vulnerability enhancing issues are provided in Section 2, Part II, *SVP on Urban Development, Human Settlements and Economic Infrastructure*.

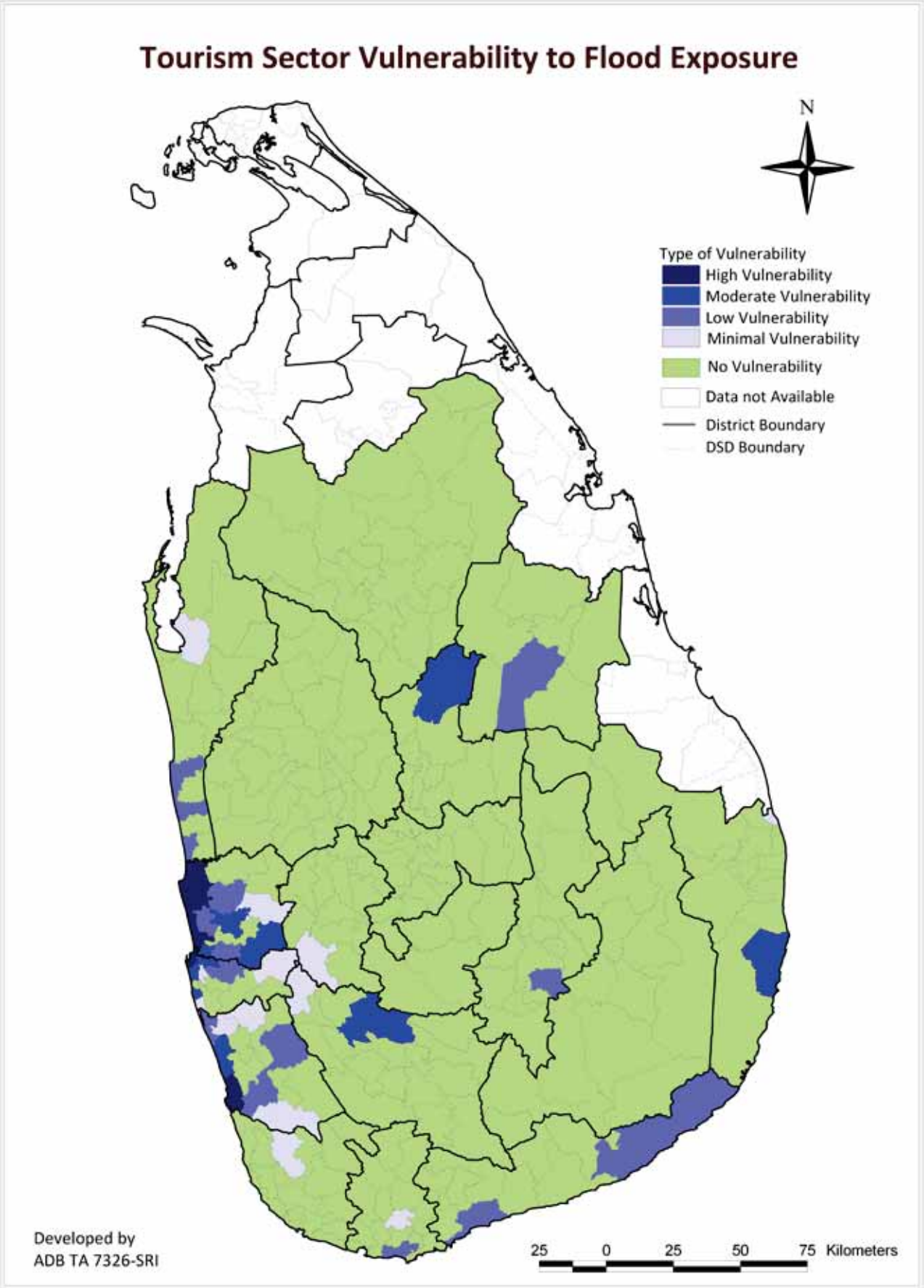
Vulnerability of the Tourism Sector to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of livelihoods dependent on tourism • Total number of guestrooms in hotels/guesthouses	A composite of data (at DSD level) on: • percentage of people employed in sectors other than tourism • percentage of people who have completed secondary education • Number of hotels/guesthouses with over 15 room capacity
Data sources: 2001 National Census and SLTDA	

Some key findings include:

- Vulnerability of the tourism sector to the expected increase of floods due to climate change is generally focused in the Western region of the country, although pockets of moderate vulnerability can be found in several other areas.
- 5 DSDs are highly vulnerable. These 5 DSDs have:
  - 4,466 hotel rooms and 713 guest house rooms (30.5% and 12.6% of capacity in each category respectively).
  - 386,449 livelihoods of which 14,876 are directly dependent on tourism.
- Colombo DSD (Colombo District) is the most vulnerable, followed by Beruwala DSD (Kalutara District).
- 10 DSDs emerge as moderately vulnerable to flood exposure. These DSDs have:
  - 2,652 hotel rooms and 853 guest rooms (18.2% and 15.1% of total capacity in each category).
  - 13,699 jobs directly dependent on tourism.


Tourism Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
High Vulnerability
Moderate Vulnerability
Low Vulnerability
Minimal Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Tourism Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
2	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
3	Gampaha	Katana	124.9577	222683	1782	50765	73318	149365	0	7.70	41.14
4	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
5	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
6	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
7	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35
8	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
9	Gampaha	Kelaniya	21.9313	134364	6127	30272	29820	104544	0	6.90	41.85
10	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
11	Ampara	Pothuvil	271.8310	28480	105	6693	0	28480	0		13.45
12	Colombo	Kolonnawa	26.0388	161247	6193	35803	56396	104851	0	8.20	35.95
13	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88
14	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
15	Gampaha	Gampaha	90.6959	171040	1886	41357	9284	161756	0	9.90	43.27
16	Gampaha	Biyagama	60.2668	161300	2676	36655	0	161300	0	11.30	41.68
17	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
18	Gampaha	Ja-Ela	61.4202	184666	3007	42975	30791	153875	0	7.80	44.60
19	Puttalam	Wennappuwa	40.9400	70817	1730	18180	0	70487	330	14.88	25.79
20	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
21	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
22	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
23	Polonnaruwa	Thamankaduwa	465.7376	74224	159	17920	0	73956	268	14.15	28.23
24	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
25	Kalutara	Mathugama	134.3624	73269	545	17604	0	66781	6488	29.40	28.65
26	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
27	Puttalam	Mahawewa	75.3055	48861	649	12600	0	48405	456	14.78	26.88
28	Colombo	Kaduwela	87.7537	209251	2385	48849	0	209251	0	6.00	48.78
29	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
30	Gampaha	Minuwangoda	133.2225	151661	1138	37683	7567	144084	10	12.50	38.36
31	Gampaha	Attanagalla	154.3057	154967	1004	36838	0	154821	146	15.40	39.55
32	Colombo	Hanwella	145.8825	94001	644	22689	21601	66446	5954	14.20	34.61
33	Kalutara	Bandaragama	57.4085	86886	1513	20579	0	86886	0	8.20	37.31
34	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
35	Matara	Kaburupitiya	59.7187	37347	625	9079	0	37347	0	24.90	31.28
36	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
37	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
38	Galle	Elpitiya	151.2593	60292	399	15049	0	58153	2139	22.70	26.49
39	Kegalle	Dehiovita	193.2396	73991	383	18460	0	62883	11108	29.30	24.21
40	Kalutara	Walallawita	213.2047	50676	238	12793	0	47579	3097	31.40	25.28
41	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
42	Kalutara	Horana	112.7795	90690	804	22048	9127	80042	1521	8.40	42.98
43	Colombo	Sri Jayawardanapura Kotte	16.5150	116366	7046	25822	116366	0	0	2.70	55.07

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Livelihoods Dependent on Tourism[b]	% of Livelihoods Dependent on Tourism[a]	No. of Hotel Rooms in DS[f and a]	No. Guest House Rooms [f and a]	Total Rooms[a]		
0	0	4411.760	6480	4.71	1969	120	2089	Colombo	1
6334	377	11001.073	2651	6.44	1095	209	1304	Beruwala	2
6612	81	24184.605	1992	1.92	471	67	538	Katana	3
889	17	10495.985	2151	4.59	665	253	918	Negombo	4
1498	140	12617.728	1602	2.80	266	64	330	Wattala	5
22407	2218	87840.666	1161	4.41	560	88	648	Dambulla	6
0	0	5529.063	4157	3.87	1082	195	1277	Thimbirigasyaya	7
13687	1504	65560.086	732	1.62	53	25	78	Rathnapura	8
472	17	4930.320	1334	2.57	40	116	156	Kelaniya	9
5288	235	13671.544	1607	3.63	613	70	683	Kaluthara	10
3781	51	63338.632	146	2.48	23	25	48	Pothuvil	11
770	32	5632.309	1250	2.19	0	10	10	Kolonnawa	12
0	0	3248.735	1694	3.69	260	215	475	Rathmalana	13
20538	421	24053.187	485	1.12	21	20	41	Dompe	14
8491	77	13843.352	1133	1.89	0	89	89	Gampaha	15
4743	143	10006.193	1007	1.60	153	25	178	Biyagama	16
2001	68	9058.369	1456	2.64	304	133	437	Panadura	17
2368	43	12766.210	1356	2.02	0	56	56	Ja-Ela	18
2494	39	7583.446	547	2.27	240	52	292	Wennappuwa	19
16292	1202	34259.229	264	1.16	64	17	81	Bulathsinhala	20
15465	1846	20372.810	401	2.04	79	64	143	Tangalle	21
17224	1145	175311.632	490	2.53	64	64	128	Tissamaharama	22
18061	831	96193.798	515	2.00	162	56	218	Thamankaduwa	23
3924	524	22576.736	227	1.42	40	25	65	Ella	24
8883	619	23699.538	664	2.89	0	10	10	Mathugama	25
7252	316	15561.806	390	2.02	15	0	15	Chilaw	26
5354	56	13198.323	384	2.37	191	31	222	Mahawewa	27
3569	116	17999.317	1398	1.80	10	16	26	Kaduwela	28
3948	133	9794.253	624	2.01	56	71	127	Matara	29
16148	192	16579.853	845	1.55	57	33	90	Minuwangoda	30
15028	362	22739.604	1000	1.97	12	35	47	Attanagalla	31
8158	544	27346.217	826	2.37	14	57	71	Hanwella	32
4220	150	9815.890	381	1.33	0	9	9	Bandaragama	33
5189	965	37930.636	338	1.85	0	10	10	Puttalam	34
8089	223	6444.750	98	0.96	57	23	80	Kaburupitiya	35
0	0	4857.293	274	1.75	0	15	15	Kalmunai	36
10422	639	24010.328	343	1.51	0	22	22	Eheliyagoda	37
18602	1040	17734.834	298	1.44	0	19	19	Elpitiya	38
10718	947	36085.352	360	1.38	10	0	10	Dehiovita	39
18416	1700	32567.808	248	1.48	0	4	4	Walallawita	40
0	26	4719.672	1306	1.94	45	64	109	Moratuwa	41
10552	227	17089.315	452	1.38	0	36	36	Horana	42
0	0	4080.936	1066	2.44	0	20	20	Sri Jayawardanapura Kotte	43

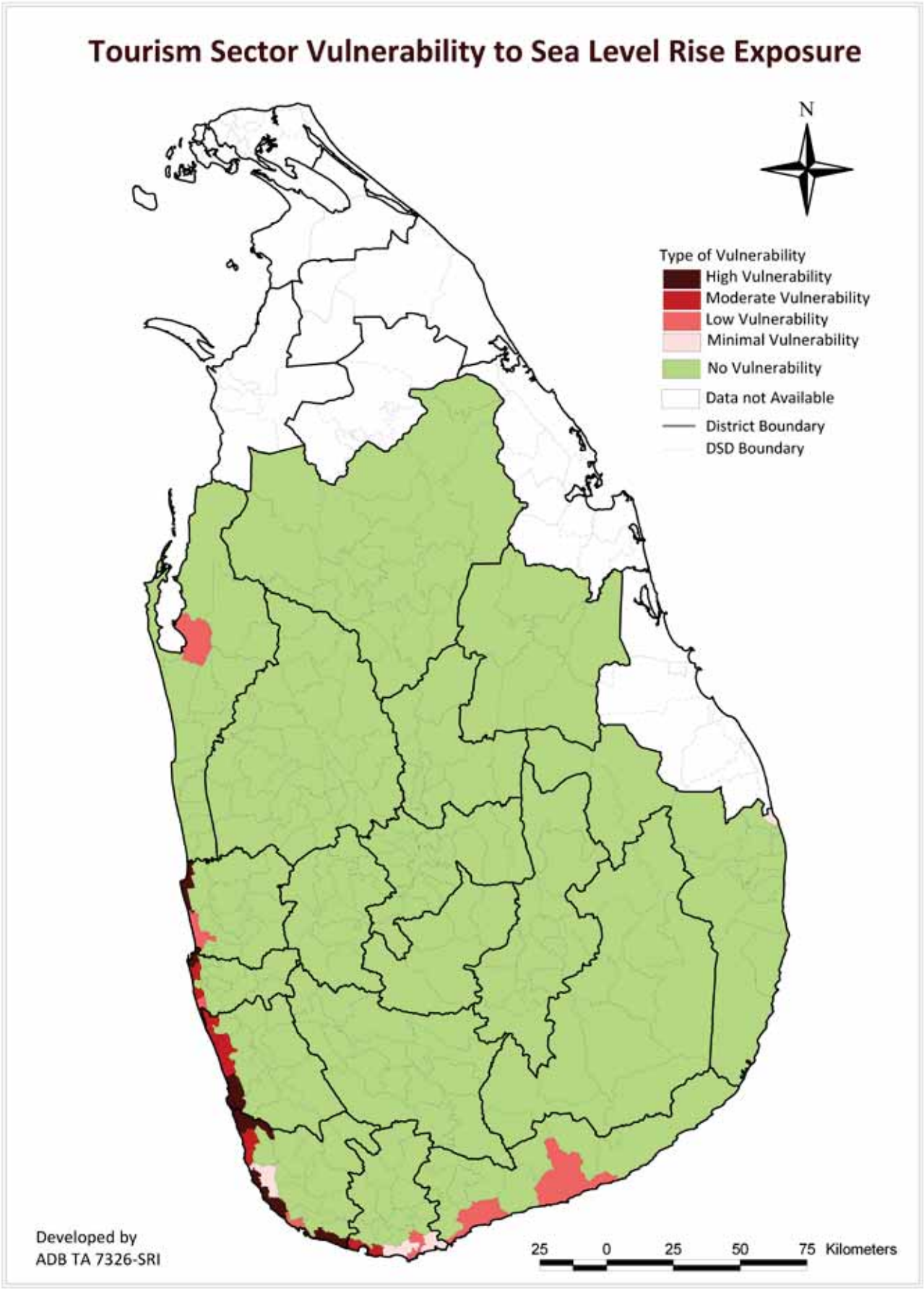
Vulnerability of the Tourism Sector to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of livelihoods dependent on tourism • Total number of guestrooms in hotels/guesthouses	A composite of data (at DSD level) on: • percentage of people employed in sectors other than tourism • percentage of people who have completed secondary education • Number of hotels/guesthouses with over 15 room capacity
Data sources: 2001 National Census and SLTDA	

Some key findings include:

- The tourism sector's vulnerability is concentrated along the Western and South-western coastline of Colombo, reflecting the concentration of tourism activities in these areas.
- 5 DSDs emerge as being highly vulnerable to potential sea level rise exposure. These 5 DSDs
  - o 4,960 hotel rooms and 895 guest rooms (34% and 15.8% of national capacity in each category.
  - o have 13,810 jobs directly dependent on tourism.
- A further 6 DSDs emerge as moderately vulnerable. These DSDs have:
  - o 2,928 hotel rooms and 808 guest rooms (20% and 14.3% of the total capacity in each category respectively).
  - o 9,715 livelihoods directly dependent on tourism.
- Complete and comparable data was not available for the North and East.
- The distribution of hotel rooms is likely to change substantially with planned new tourism developments in Kalpitiya (Puttalam District) and along the Eastern coastline. A planning scenario simulating 1,500 hotel rooms in Kalpitiya raised it to be one of the DSDs with its tourism sector most vulnerable to sea level rise exposure.

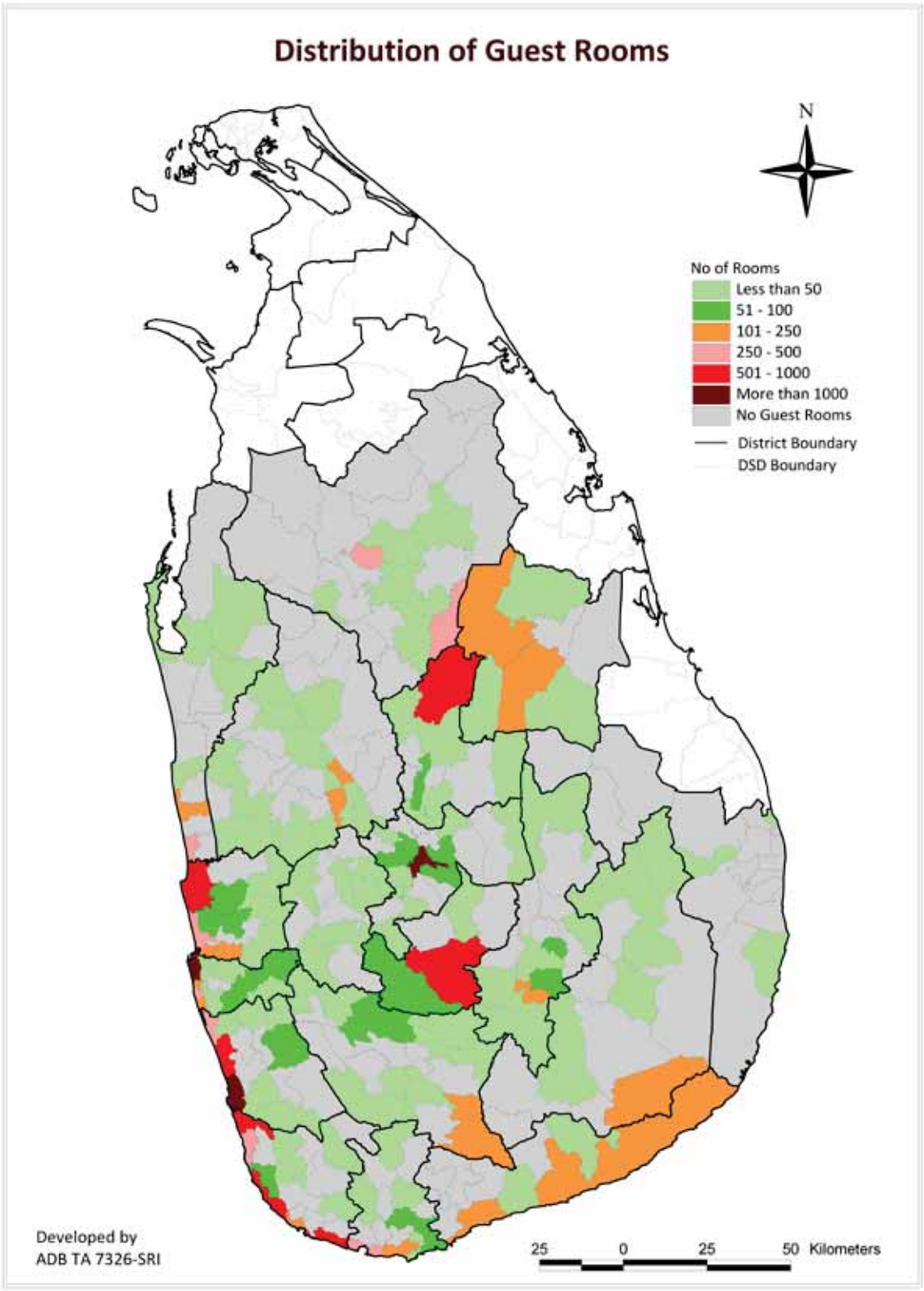

Tourism Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
High Vulnerability
Moderate Vulnerability
Low Vulnerability
Minimal Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Tourism Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability Moderate Vulnerability Low Vulnerability Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
2	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
3	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
4	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
5	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
6	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
7	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35
8	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
9	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88
10	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
11	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
12	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
13	Galle	Galle Four Gravets	23.7565	103246	4346	19425	90270	12976	0	19.30	39.96
14	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
15	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
16	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
17	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
18	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
19	Matara	Devinuwara	37.6183	44199	1175	9988	0	44199	0	20.90	26.80
20	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
21	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
22	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
23	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87

Land Use			Sector Specific Data					DSD Name	Rank
Agriculture Land Area (Acres)[d]	Forest Land (Acres)[d]	Other Land Uses (Acres)[a]	Livelihoods Dependent on Tourism[b]	% of Livelihoods Dependent on Tourism[a]	No. of Hotel Rooms in DS[f and a]	No. Guest House Rooms [f and a]	Total Rooms[a]		
8597	240	9037.489	1601	12.00	766	90	856	Bentota	1
6334	377	11001.073	2651	6.44	1095	209	1304	Beruwala	2
6562	209	5465.181	927	5.08	465	223	688	Habaraduwa	3
889	17	10495.985	2151	4.59	665	253	918	Negombo	4
0	0	4411.760	6480	4.71	1969	120	2089	Colombo	5
6512	300	9520.874	1051	3.92	625	148	773	Hikkaduwa	6
0	0	5529.063	4157	3.87	1082	195	1277	Thimbirigasyaya	7
4315	111	6235.785	413	2.33	120	153	273	Weligama	8
0	0	3248.735	1694	3.69	260	215	475	Rathmalana	9
5288	235	13671.544	1607	3.63	613	70	683	Kaluthara	10
7227	93	6165.164	793	4.48	228	27	255	Balapitiya	11
2001	68	9058.369	1456	2.64	304	133	437	Panadura	12
1564	71	4235.335	847	2.86	78	45	123	Galle Four Gravets	13
9087	1059	73618.859	353	2.35	161	7	168	Hambantota	14
1498	140	12617.728	1602	2.80	266	64	330	Wattala	15
0	26	4719.672	1306	1.94	45	64	109	Moratuwa	16
15465	1846	20372.810	401	2.04	79	64	143	Tangalle	17
5189	965	37930.636	338	1.85	0	10	10	Puttalam	18
3860	153	5282.647	157	1.35	32	0	32	Devinuwara	19
10933	128	6297.275	405	1.97	24	27	51	Ambalangoda	20
3948	133	9794.253	624	2.01	56	71	127	Matara	21
0	0	4857.293	274	1.75	0	15	15	Kalmunai	22
6411	260	5923.599	242	1.83	71	0	71	Dickwella	23


Distribution of Guest Rooms
N
No of Rooms
Less than 50
51 - 100
101 - 250
250 - 500
501 - 1000
More than 1000
No Guest Rooms
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25
0
25
50 Kilometers

Water for Domestic Needs and Irrigation

Water satisfies a basic human need, and is a vital resource for the proper functioning of all sectors of Sri Lanka's economy, be it agriculture, health, energy, supply of water for drinking and sanitation and industry.

Sri Lanka is frequently subjected to several natural hazards, mainly floods, landslides, and droughts. The frequency and intensity of these hazards are expected to increase with climate change. Sea level rise, coastal flooding, coastal erosions, changes in rainfall regimes and the rise in ambient temperature are also expected. These concerns will be exacerbated by various anthropogenic factors that already threaten freshwater resources in the island and have resulted in many socio-economic and environmental problems.

Drinking Water

Sri Lanka depends on its surface and groundwater resources for domestic use. At the time Sri Lanka received independence in 1948 only a segment of the urban population in Colombo and Kandy had piped water, while the main sources of drinking water at the time were unprotected wells, rivers, tanks and canals. The share of water used by the urban population in Sri Lanka is projected to increase to 45% by 2015 and to 65% by 2030, which is bound to increase the pressure to meet the national targets for drinking water.

Currently, 35.5% of the entire population in the island have access to pipe-borne water, but rural populations continue to rely considerably on wells for their drinking, culinary needs, washing, bathing and laundering requirements, while others use water from tanks and reservoirs for these needs. Although around 84.8% of the population has access to safe drinking water, the water sector faces considerable challenges to meet its target of providing an uninterrupted supply of water to all in the medium-term due to rising demand.

The analysis of climate data for Sri Lanka clearly indicates changes in rainfall and temperature throughout the country. As climate change is expected to change the pattern and quantity of rainfall, evapo-transpiration, surface run-off and soil moisture storage, changes in water availability for irrigated agriculture and public use could well be anticipated.

Drinking water availability in terms of quantity and quality, in the country is already under threat due to anthropogenic stresses. These, with the added implications of climate change will bring about further risk to resource availability. For example, sea level rise is expected to cause saline intrusion which can seriously affect freshwater availability. Salt water intrusion can affect coastal aquifers upon which people are heavily dependent, especially with the country's population concentrated on the coastal belt. More frequent and prolonged drought conditions will seriously affect the availability of freshwater resources further inland, which will impede meeting the targets for providing drinking water for all. Freshwater availability problems are expected to worsen especially in the Dry Zone.

Drinking Water Sector Vulnerability to Drought Exposure

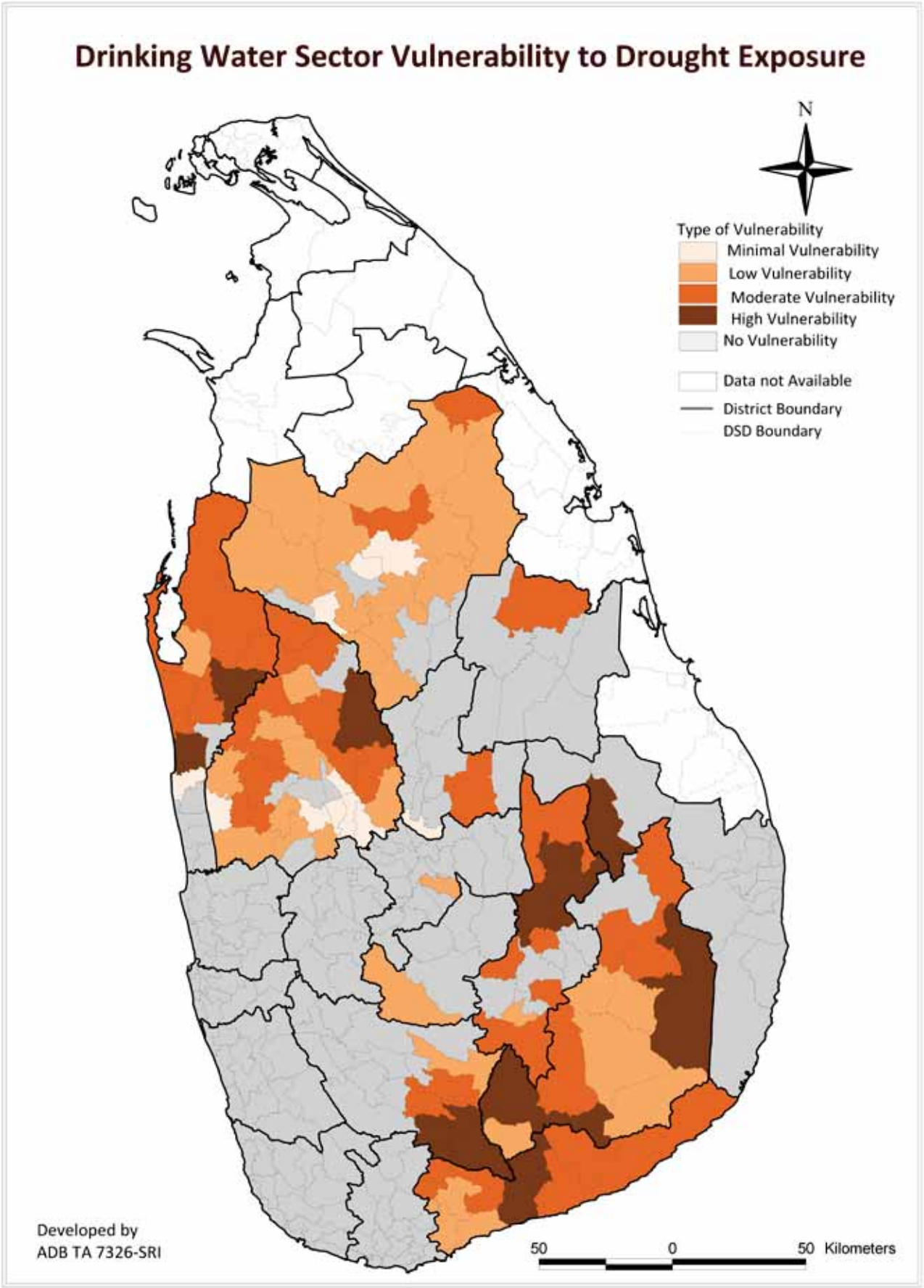
The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of Grama Niladari Divisions with more than 2 types of water sources • Percentage of households with primary water source within premises • Incidence of water borne disease • Population density	A composite of data (at DSD level) on: • percentage of people above the globally accepted poverty line • percentage of people who have completed secondary education
Source of raw data: Population and Housing Census,2001	

Some of the key findings include:

- Vulnerability is widespread, but the south/south-central, north-western and north-central regions of the country are particularly vulnerable.
- 13 DSDs emerge as highly vulnerable to the impacts of drought. These DSDs have:
  - a population of 575,287.
  - 143,036 housing units.
  - 194,950 people below the poverty line.
- In the highly vulnerable DSDs
  - 71.6% of the population depend on groundwater (i.e. 63.5% depend on either protected/ unprotected wells and 8.1% depend on tube wells).
  - 18.1% of the population have access to pipe-borne water.
  - 9.2% of households depend on rivers, streams and tanks as their primary source of water; only 28.2% of households have their primary source of water within their own premises.
- Embilipitiya (Ratnapura District), Rideemaliyadda (Badulla District) and Siyambalanduwa (Moneragala District) emerge as the 3 DSDs most vulnerable to impacts of drought on their drinking water supply.
  - In the Embilipitiya DSD, 54% of the housing units used groundwater as their primary source of drinking water.
  - In the Rideemaliyadda DSD, 89.3% of the 10,681 households use groundwater as their primary source of water.
  - In the Siyambalanduwa DSD, 90.9% of the households used groundwater as the primary water source.
  - All three of these DSDs have very high levels of poverty and low education levels (especially Rideemaliyadda and Siyambalanduwa DSDs).
  - Embilipitiya and Rideemaliyadda have high incidences of water borne diseases.
- Another 35 DSDs emerged as having moderate vulnerability of their drinking water to drought exposure. They have:
  - 15.2% of households with access to pipe-borne water.
  - 75.1% of households that use groundwater as their primary source of water.
  - 8.3% of households that use water from rivers, streams and other sources only 32.3% of households with their primary source of water within their own premises.

Drinking Water Sector Vulnerability to Drought Exposure



Drinking Water Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
2	Badulla	Rideemaliyadda	438.2808	45759	104	10681	0	45582	177	51.15	14.89
3	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
4	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
5	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
6	Ampara	Padiyathalawa	386.8510	15971	41	3642	0	15971	0		11.66
7	Badulla	Meegahakivula	108.7195	18650	172	4558	0	16316	2334	46.50	12.52
8	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
9	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
10	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
11	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
12	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
13	Rathnapura	Kolonna	183.0319	43693	239	10661	0	38930	4763	37.70	14.65
14	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
15	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
16	Rathnapura	Godakawela	155.7512	69123	444	16962	0	57669	11454	38.20	20.31
17	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
18	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
19	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
20	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
21	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
22	Hambantota	Angunukolapeles	174.0781	42426	244	10394	0	42426	0	33.00	16.83
23	Moneragala	Madulla	722.5206	28358	39	6678	0	28358	0	40.70	19.44
24	Badulla	Soranathota	80.8879	22760	281	5667	0	18160	4600	34.24	17.35
25	Badulla	Mahiyanganaya	598.4674	67301	112	16499	0	67301	0	38.57	20.02
26	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
27	Puttalam	Vanathavilluwa	736.5317	16460	22	4024	0	16410	50	40.31	12.25
28	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
29	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
30	Hambantota	Katuwana	103.7065	41392	399	10025	0	62344	0	34.30	17.11
31	Puttalam	Mahakumbuk kadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
32	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
33	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
34	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
35	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
36	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
37	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
38	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
39	Matale	Laggala-Pallegama	373.8370	12399	33	3305	0	12055	344	34.60	19.05
40	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
41	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
42	Moneragala	Medagama	241.1373	32467	135	7664	0	32467	0	30.20	14.89
43	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
44	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
45	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
46	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
47	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
48	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
49	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
50	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
51	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
52	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
53	Moneragala	Moneragala	292.5414	42457	145	10071	0	39112	3345	29.30	23.23

Primary Water Source						DSD Name	Rank
Wells[b]	Tubewells[b]	Tap[b]	Other[b]	Wells and Taps within Premises[b]	Wells and Taps outside Premises[b]		
13235	2528	10436	2627	10577	9994	Embilipitiya	1
8838	697	262	772	2876	3748	Rideemaliyadda	2
9098	723	41	875	2126	2952	Siyambalanduwa	3
7072	1386	410	75	1958	5177	Anamaduwa	4
2284	462	1258	1342	903	2110	Kandaketiya	5
2588	601	36	399	540	791	Padiyathalawa	6
1749	262	1893	602	1330	1964	Meegahakivula	7
2775	1279	1103	673	1284	1514	Thanamalwila	8
5948	406	1448	1111	1848	3625	Suriyawewa	9
16971	982	266	487	5644	8251	Polpithigama	10
8054	1028	5810	354	5968	6238	Ambalantota	11
7358	987	758	700	3545	4458	Arachchikattuwa	12
4860	278	2183	3208	1702	3275	Kolonna	13
10964	804	3167	3671	2962	7741	Uva Paranagama	14
17236	224	887	95	10419	5370	Kuliyapitiya West	15
6858	247	4124	5519	3836	5313	Godakawela	16
5146	151	841	1457	1476	3147	Weligepola	17
10213	1222	223	1575	4952	4778	Mundalama	18
4252	520	414	216	1292	1337	Padaviya	19
13889	1747	1103	818	8347	5920	Kalpitiya	20
851	103	5760	108	1488	5021	Lunugamvehera	21
7997	1221	1065	31	2148	4790	Angunukolapeles	22
5338	361	325	592	2620	2308	Madulla	23
1870	114	2280	1320	1179	2398	Soranathota	24
13240	747	1531	734	6613	5728	Mahiyanganaya	25
3978	1350	31	122	624	2689	Karuwalagaswewa	26
1850	804	606	678	681	1293	Vanathavilluwa	27
9344	153	107	143	4427	4223	Ganewatta	28
1133	151	6158	2267	3285	3606	Haldummulla	29
8504	1557	2612	2316	3491	2757	Katuwana	30
3534	975	86	79	793	2393	Mahakumbuk kadawala	31
5768	1111	2043	3597	2716	2878	Wellawaya	32
10145	1802	577	60	3036	5741	Galgamuwa	33
3162	259	5252	1887	2722	4725	Ella	34
17364	317	276	57	9614	7353	Panduwasnuwara	35
6951	1007	27	173	2190	3883	Rambewa	36
8072	210	159	56	3975	3980	Kobeigane	37
4489	747	16	8	1173	3130	Kotawehera	38
1525	436	386	939	592	954	Laggala-Pallegama	39
3016	78	7370	378	5482	4664	Hambantota	40
12514	1300	889	319	2420	4231	Medirigiriya	41
5985	311	378	880	1720	2745	Medagama	42
18167	288	641	289	9059	8134	Ibbagamuwa	43
2243	1098	118	15	540	1499	Nawagattegama	44
6098	1071	7108	394	6400	6309	Tissamaharama	45
12782	594	176	49	5503	6218	Mahawa	46
6274	1332	47	140	1391	3296	Giribawa	47
4623	296	26	45	1330	3025	Rasnayakapura	48
6132	1079	117	158	1962	3400	Horowpothana	49
8047	969	415	67	3041	4915	Nikaweratiya	50
7988	1654	409	68	3167	3843	Medawachchiya	51
3863	560	226	151	1071	1932	Kebithigollewa	52
5721	818	2087	1341	3139	2903	Moneragala	53

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
54	Hambantota	Weeraketiya	115.4094	37401	324	9208	0	55459	0	32.50	21.20
55	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
56	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
57	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85
58	Hambantota	Okewela	41.9560	18247	435	4266	0	18247	0	34.10	25.51
59	Moneragala	Sewanagala	191.9569	36820	192	9221	0	35739	1081	19.30	20.35
60	Moneragala	Badalkumbura	235.9900	36784	156	9030	0	32733	4051	27.90	23.53
61	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.14	20.32
62	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
63	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
64	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
65	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
66	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
67	Moneragala	Buttala	735.5660	47324	64	11843	0	47324	0	21.20	22.01
68	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
69	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
70	Moneragala	Katharagama	536.3836	16297	30	3875	0	16297	0	19.80	19.56
71	Badulla	Haputhale	70.3267	50735	721	11565	3235	29372	18128	24.42	29.37
72	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
73	Kurunegala	Polgahawela	97.3861	58762	603	14506	0	57940	822	22.91	35.64
74	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
75	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
76	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
77	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
78	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
79	Kandy	Pathahewaheta	83.5016	53843	645	13229	0	51531	2312	26.60	30.92
80	Hambantota	Beliatta	102.5034	52283	510	12630	0	52283	0	28.30	36.26
81	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57
82	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
83	Anuradhapura	Ipalogama	142.4270	32933	231	8730	0	31992	941	17.41	25.86
84	Kurunegala	Narammala	108.3197	51244	473	13092	0	51244	0	21.40	33.36
85	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
86	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
87	Kurunegala	Mawathagama	109.6233	56820	518	14191	0	55013	1807	24.92	33.95
88	Matale	Ukuwela	77.9074	61568	790	14856	977	54983	5608	21.40	29.55
89	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03
90	Kurunegala	Udubaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
91	Kurunegala	Mallawapitiya	79.9307	46575	583	11574	0	46240	335	19.50	33.19
92	Kurunegala	Weerambugedara	91.3110	30311	332	8085	0	30311	0	20.11	39.05
93	Kurunegala	Kurunegala	111.0680	88944	801	20292	28401	60369	174	14.70	44.87
94	Anuradhapura	Nuwaragam Palatha East	90.6614	65671	724	14504	40030	25641	0	11.97	44.47

Primary Water Source						DSD Name	Rank
Wells[b]	Tubewells[b]	Tap[b]	Other[b]	Wells and Taps within Premises[b]	Wells and Taps outside Premises[b]		
10838	1533	782	275	3559	4399	Weeraketiya	54
14361	526	170	70	7704	5936	Bingiriya	55
8372	91	6801	3188	5736	7168	Balangoda	56
3084	1303	55	101	1064	1687	Maha Vilachchiya	57
3985	161	55	49	1404	1727	Okewela	58
5852	558	503	2178	1074	3235	Sewanagala	59
4904	581	1070	2385	1566	2996	Badalkumbura	60
7755	2528	2280	254	4230	4949	Nuwaragam Palatha Central	61
14379	300	331	86	7346	6553	Wariyapola	62
15626	546	2887	1845	7217	9121	Rideegama	63
4996	1679	28970	9840	14791	17703	Ambagamuwa	64
7019	814	638	61	2621	4359	Kahatagasdigiliya	65
4275	834	259	82	1416	2696	Ambanpola	66
7043	1216	1877	1636	3838	3525	Buttala	67
8081	1443	5207	681	5780	7182	Puttalam	68
11715	979	170	383	3328	5925	Thalawa	69
331	49	3235	191	1991	1546	Katharagama	70
2526	187	6548	1951	3917	4396	Haputhale	71
8811	1162	152	186	2467	4968	Galenbidunuwawe	72
13132	280	916	46	7049	5067	Polgahawela	73
5415	455	8699	326	6255	7096	Tangalle	74
4717	1227	21	115	1073	3193	Thirappane	75
8841	1343	729	189	2742	5465	Nochchiyagama	76
6070	1362	199	435	1726	3345	Palagala	77
6658	1259	95	110	1574	3628	Galnewa	78
5861	1863	4363	1000	2064	6751	Pathahewaheta	79
10122	312	1995		5075	5703	Beliatta	80
11310	77	172	65	5754	4188	Kuliyapitiya East	81
27873	243	837	183	14896	4928	Pannala	82
7006	1222	379	87	1815	4005	Ipalogama	83
12458	220	267	48	6286	3561	Narammala	84
7543	764	892	130	2368	4533	Thambuttegama	85
7886	774	5331	357	7252	5801	Chilaw	86
12283	399	854	520	6403	5482	Mawathagama	87
5776	848	6644	1349	4856	6691	Ukuwela	88
3851	1763	862	32	2278	2102	Mihintale	89
12003	332	168	70	7019	2997	Udubaddawa	90
10063	380	590	403	5778	3838	Mallawapitiya	91
7785	85	83	42	4400	2281	Weerambugedara	92
16326	562	2943	54	11674	6855	Kurunegala	93
3495	1275	9274	140	9352	3025	Nuwaragam Palatha East	94

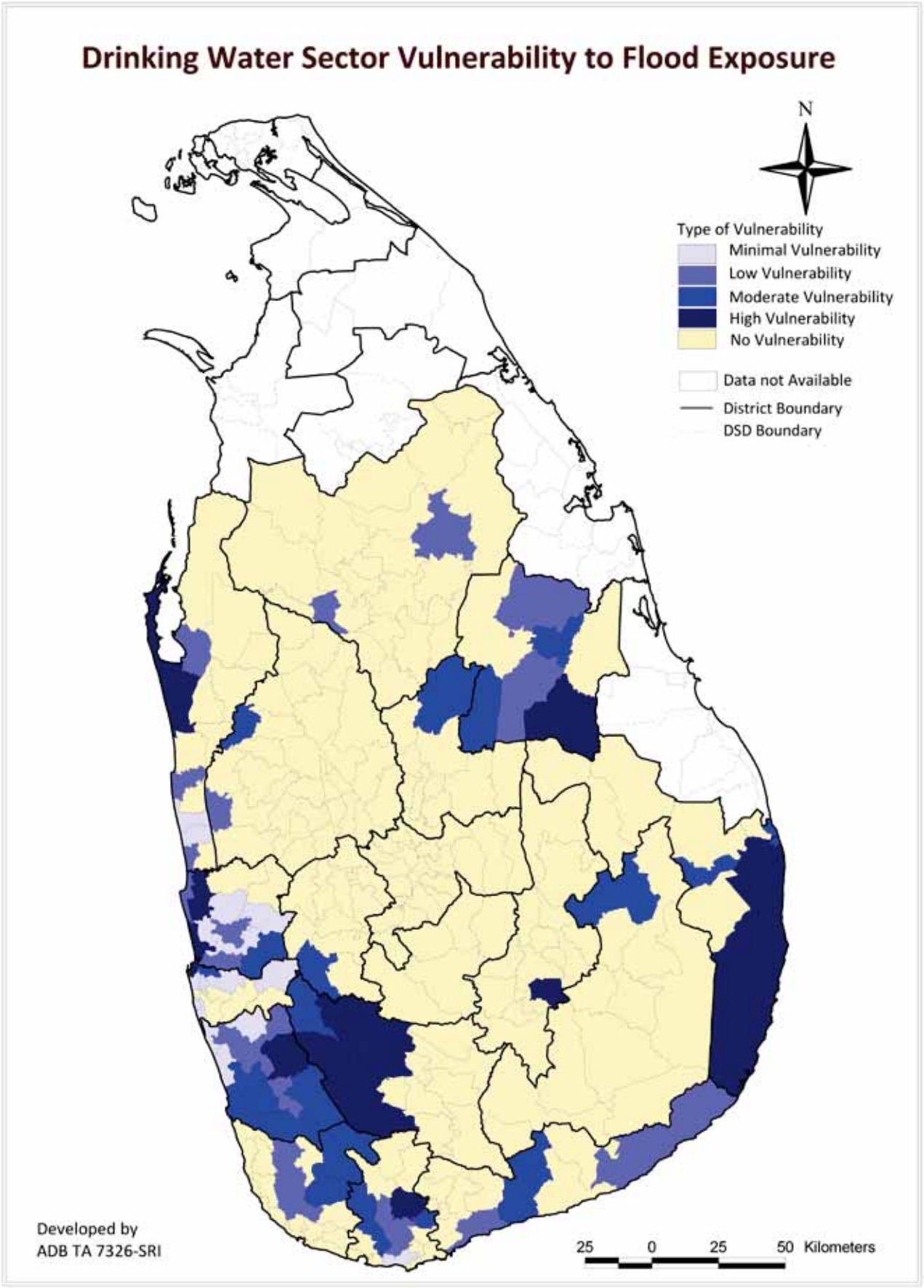
Drinking Water Sector Vulnerability to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of Grama Niladari Divisions with more than 2 types of water sources • Percentage of households with primary water source within premises • Incidence of water borne disease • Population density	A composite of data (at DSD level) on: • percentage of people above the globally accepted poverty line • percentage of people who have completed secondary education
Source of raw data: Population and Housing Census,2001	

Some of the key findings include:

- Vulnerability is widespread, and is prevalent in many areas of the country.
- 26 DSDs emerge as highly vulnerable to the impacts of floods. These DSDs have:
  - a population of 1.84 million.
  - 412,886 housing units.
  - 364,364 people below the poverty line.
- These highly vulnerable DSDs have
  - 53.4% of the population depend on groundwater (i.e. 48% depend on either protected/ unprotected wells and 5% depend on tube wells)
  - only 33% of the population have access to pipe-borne water.
  - 11% of households depend on rivers, streams, and tanks as their primary source of water.
  - only 42.8% of households have their primary source of water within their own premises.
- Elapaatha (Ratnapura District), Addalachchenai and Pottuvil (both in the Ampara District) emerge as the 3 DSDs most vulnerable to floods in terms of the drinking water.
  - All 3 DSDs have limited access to pipe-borne water and rely heavily on groundwater and people in Elapatha also rely significantly on other sources such as streams and rivers (on average dependency on groundwater is 78.7%).
- All 3 of these DSDs show high incidence of water-borne diseases.
- Another 26 DSDs emerged as having moderate vulnerability of their drinking water to floods. They have:
  - 22.8% of households with access to pipe-borne water.
  - 69.1% of households that use groundwater as their primary source of water.
  - 6.8% of households that use water from rivers, streams, and other sources.
  - only 43.2% of their households with their primary source of water within their own premises.


Drinking Water Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 Kilometers

Drinking Water Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
2	Ampara	Addalachchenai	56.9586	36020	632	7640	0	36020	0		17.64
3	Ampara	Pothuvil	271.8310	28480	105	6693	0	28480	0		13.45
4	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
5	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
6	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
7	Gampaha	Katana	124.9577	222683	1782	50765	73318	149365	0	7.70	41.14
8	Ampara	Sainthamarathu	3.0272	24114	7966	5144	24114	0	0		21.81
9	Ampara	Alayadiwembu	82.5912	22627	274	4956	0	22627	0		22.67
10	Ampara	Lahugala	923.3049	7623	8	1888	0	7623	0		15.57
11	Rathnapura	Kalawana	384.7488	48669	126	11905	0	44632	4037	36.40	23.93
12	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
13	Ampara	Eragama	66.6480	11344	170	2632	0	11344	0		13.35
14	Ampara	Thirukkovil	187.0859	23700	127	5427	0	23700	0		20.88
15	Polonnaruwa	Dimbulagala	552.3964	63349	115	16757	0	63339	10	22.59	18.60
16	Rathnapura	Nivithigala	157.9051	59092	374	13989	0	47942	11150	32.80	17.57
17	Ampara	Samanthurai	123.0101	51510	419	11729	0	51510	0		20.13
18	Rathnapura	Kuruwita	174.6734	85882	492	20460	0	80326	5556	28.90	23.57
19	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
20	Matara	Mulatiyana	119.4139	46066	386	11169	0	45501	565	30.90	21.41
21	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
22	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
23	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
24	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
25	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
26	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
27	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
28	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
29	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58
30	Moneragala	Bibila	483.5204	35490	73	8817	0	34818	672	26.00	17.05
31	Matara	Hakmana	49.6219	30201	609	7190	0	30201	0	32.00	29.15
32	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
33	Galle	Neluwa	152.2868	27501	181	6445	0	27251	250	33.40	16.54
34	Ampara	Ampara	139.2692	38166	274	8713	17957	20209	0		30.45
35	Galle	Thawalama	174.1470	31803	183	7710	0	30789	1014	29.50	19.99
36	Kalutara	Walallawita	213.2047	50676	238	12793	0	47579	3097	31.40	25.28
37	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
38	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
39	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
40	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
41	Kalutara	Mathugama	134.3624	73269	545	17604	0	66781	6488	29.40	28.65
42	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
43	Kalutara	Dodangoda	112.8241	55052	488	13646	0	47970	7082	21.20	27.42
44	Galle	Nagoda	174.6178	52414	300	13028	0	46707	5707	28.70	23.04
45	Matara	Malimbada	47.9781	31524	657	7577	0	31384	140	24.30	31.38
46	Polonnaruwa	Lankapura	200.7756	33676	168	8611	0	33676	0	14.54	19.42
47	Kegalle	Dehiovita	193.2396	73991	383	18460	0	62883	11108	29.30	24.21
48	Matara	Akuressa	148.6167	49806	335	11825	0	48508	1298	21.90	24.28
49	Polonnaruwa	Elahera	353.1772	39908	113	10446	0	39908	0	18.45	17.46
50	Colombo	Kolonnawa	26.0388	161247	6193	35803	56396	104851	0	8.20	35.95
51	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
52	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
53	Matara	Athuraliya	65.9339	30179	458	7039	0	29380	799	27.80	26.77
54	Kalutara	Millaniya	82.0638	44476	542	11035	0	43110	1366	16.90	30.71

Primary Water Source						DSD Name	Rank
Wells[b]	Tubewells[b]	Tap[b]	Other[b]	Wells and Taps within Premises[b]	Wells and Taps outside Premises[b]		
4766	38	1083	2812	1902	2958	Elapatha	1
7021	7	32	409	6033	831	Addalachchenai	2
6295	103	26	92	3507	2555	Pothuvil	3
3149	866	63741	327	34959	31841	Colombo	4
7822	105	9603	8461	7219	8969	Rathnapura	5
1247	4	2456	3470	1212	1920	Ayagama	6
30278	10703	8072	233	27170	9747	Katana	7
5057	11	15	14	4607	444	Sainthamarathu	8
4746	12	19	36	3521	1161	Alayadiwembu	9
1687	107	18	65	608	1004	Lahugala	10
2616	27	2388	6539	2098	1874	Kalawana	11
7202	1	20	278	6483	646	Akkaraipattu	12
2055	36	34	447	914	985	Eragama	13
5156	2	24	60	3736	1277	Thirukkovil	14
13521	700	1138	1158	1919	7279	Dimbulagala	15
3918	45	3106	6769	1851	3261	Nivithigala	16
6607	313	4016	403	5768	4222	Samanthurai	17
12477	75	2281	5388	5870	6363	Kuruwita	18
5725	25	289	40	5640	330	Ninthavur	19
8897	250	567	1361	4048	2869	Mulatiyana	20
8230	131	9247	1933	5942	9334	Pelmadulla	21
10213	1222	223	1575	4952	4778	Mundalama	22
3162	259	5252	1887	2722	4725	Ella	23
13889	1747	1103	818	8347	5920	Kalpitiya	24
12026	3132	20038	204	20928	10959	Wattala	25
12205	591	1328	1215	4863	5284	Bulathsinhala	26
29479	207	1866	169	20042	7667	Dompe	27
8042	60	794	2497	2611	2654	Palindanuwara	28
4318	13	3031	215	3350	3300	Kiriella	29
6388	479	810	1054	2200	2916	Bibila	30
6091	146	876	34	3050	2980	Hakmana	31
3319	7	226	57	2887	634	Karativu	32
3025	28	936	2381	1414	1508	Neluwa	33
4240	61	3957	293	4340	2945	Ampara	34
3393	77	2078	2060	2167	2103	Thawalama	35
10777	142	724	902	4725	3093	Walallawita	36
9896	79	2299	3214	4585	5449	Eheliyagoda	37
5948	406	1448	1111	1848	3625	Suriyawewa	38
8054	1028	5810	354	5968	6238	Ambalantota	39
12931	120	2179	249	12489	2422	Kalmunai	40
15310	207	1530	253	7787	6293	Mathugama	41
4623	296	26	45	1330	3025	Rasnayakapura	42
12419	110	766	216	5409	5503	Dodangoda	43
9850	1034	1089	868	4168	3410	Nagoda	44
6349	120	974	70	4708	1912	Malimbada	45
7164	813	236	290	1629	2696	Lankapura	46
9456	77	3849	4796	4954	6220	Dehiovita	47
8333	107	1461	1743	4516	3001	Akuressa	48
6805	2739	470	304	1455	2720	Elahera	49
5570	330	29216	128	24703	9891	Kolonnawa	50
16223	424	12226	205	14874	10492	Beruwala	51
9777	4429	685	230	3639	4065	Dambulla	52
5979	48	549	440	3312	1906	Athuraliya	53
10469	122	267	50	4693	4602	Millaniya	54

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
55	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
56	Matara	Kaburupitiya	59.7187	37347	625	9079	0	37347	0	24.90	31.28
57	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
58	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
59	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
60	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
61	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
62	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
63	Kalutara	Agalawatta	89.7814	33962	378	8423	0	32768	1194	26.40	33.03
64	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
65	Kalutara	Madurawala	62.9158	29750	473	7552	0	27129	2621	18.60	34.30
66	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
67	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
68	Galle	Welivitiya-Divithura	54.9823	26599	484	6622	0	25059	1540	25.50	23.29
69	Gampaha	Kelaniya	21.9313	134364	6127	30272	29820	104544	0	6.90	41.85
70	Kalutara	Ingiriya	94.0498	45726	486	11314	0	43590	2136	17.40	26.56
71	Galle	Baddegama	114.4507	68634	600	16761	0	66249	2385	21.70	30.17
72	Gampaha	Biyagama	60.2668	161300	2676	36655	0	161300	0	11.30	41.68
73	Galle	Elpitiya	151.2593	60292	399	15049	0	58153	2139	22.70	26.49
74	Kalutara	Bandaragama	57.4085	86886	1513	20579	0	86886	0	8.20	37.31
75	Polonnaruwa	Thamankaduwa	465.7376	74224	159	17920	0	73956	268	14.15	28.23
76	Gampaha	Gampaha	90.6959	171040	1886	41357	9284	161756	0	9.90	43.27
77	Puttalam	Wennappuwa	40.9400	70817	1730	18180	0	70487	330	14.88	25.79
78	Gampaha	Attanagalla	154.3057	154967	1004	36838	0	154821	146	15.40	39.55
79	Gampaha	Ja-Ela	61.4202	184666	3007	42975	30791	153875	0	7.80	44.60
80	Colombo	Hanwella	145.8825	94001	644	22689	21601	66446	5954	14.20	34.61
81	Puttalam	Mahawewa	75.3055	48861	649	12600	0	48405	456	14.78	26.88
82	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
83	Gampaha	Minuwangoda	133.2225	151661	1138	37683	7567	144084	10	12.50	38.36
84	Puttalam	Nattandiya	75.3430	57686	766	14528	0	57535	151	15.54	28.96
85	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
86	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
87	Colombo	Kaduwela	87.7537	209251	2385	48849	0	209251	0	6.00	48.78
88	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
89	Gampaha	Mahara	94.2988	176870	1876	41639	0	176870	0	12.10	37.86
90	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35
91	Kalutara	Horana	112.7795	90690	804	22048	9127	80042	1521	8.40	42.98
92	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88
93	Colombo	Sri Jayawardanapura Kotte	16.5150	116366	7046	25822	116366	0	0	2.70	55.07

Primary Water Source						DSD Name	Rank
Wells[b]	Tubewells[b]	Tap[b]	Other[b]	Wells and Taps within Premises[b]	Wells and Taps outside Premises[b]		
7886	774	5331	357	7252	5801	Chilaw	55
7589	141	1143	145	5278	2278	Kaburupitiya	56
12003	332	168	70	7019	2997	Ududbaddawa	57
6934	110	379	35	4471	2045	Thihagoda	58
5415	455	8699	326	6255	7096	Tangalle	59
7019	814	638	61	2621	4359	Kahatagasdigiliya	60
6093	3984	20986	325	16316	10694	Negombo	61
8081	1443	5207	681	5780	7182	Puttalam	62
7080	104	495	636	2879	2820	Agalawatta	63
6098	1071	7108	394	6400	6309	Tissamaharama	64
6898	66	367	148	3520	2882	Madurawala	65
12514	1300	889	319	2420	4231	Medirigiriya	66
7543	764	892	130	2368	4533	Thambuttegama	67
5618	634	216	108	2606	1689	Welivitiya-Divithura	68
7662	448	21468	66	19776	9125	Kelaniya	69
8991	242	1488	477	4730	4408	Ingiriya	70
14421	1082	901	192	7821	4933	Baddegama	71
26312	554	8795	95	24415	9589	Biyagama	72
13247	428	890	337	6450	4282	Elpitiya	73
18890	206	1119	81	13324	5588	Bandaragama	74
10813	1569	4895	338	7534	5013	Thamankaduwa	75
37241	511	3182	107	30472	7811	Gampaha	76
10883	4615	2255	128	9146	3400	Wennappuwa	77
32115	169	3946	160	24539	8332	Attanagalla	78
31686	4141	5452	289	27693	8737	Ja-Ela	79
17734	110	3520	1134	11216	7891	Hanwella	80
8605	2169	1511	148	6219	3670	Mahawewa	81
19067	2519	9515	259	17472	9734	Kaluthara	82
33791	685	2561	161	26684	6228	Minuwangoda	83
10640	2757	841	138	8124	2741	Nattandiya	84
7067	112	16139	157	17355	5176	Matara	85
1858	775	37862	88	29404	10214	Moratuwa	86
30566	345	16916	101	33113	13140	Kaduwela	87
21028	2021	13401	153	23432	10382	Panadura	88
31335	291	9266	163	29439	9005	Mahara	89
1184	616	48175	246	29446	19860	Thimbirigasyaya	90
18724	458	2475	131	13333	6113	Horana	91
1440	50	22901	80	20045	4265	Rathmalana	92
1799	71	23286	76	20698	4296	Sri Jayawardanapura Kotte	93

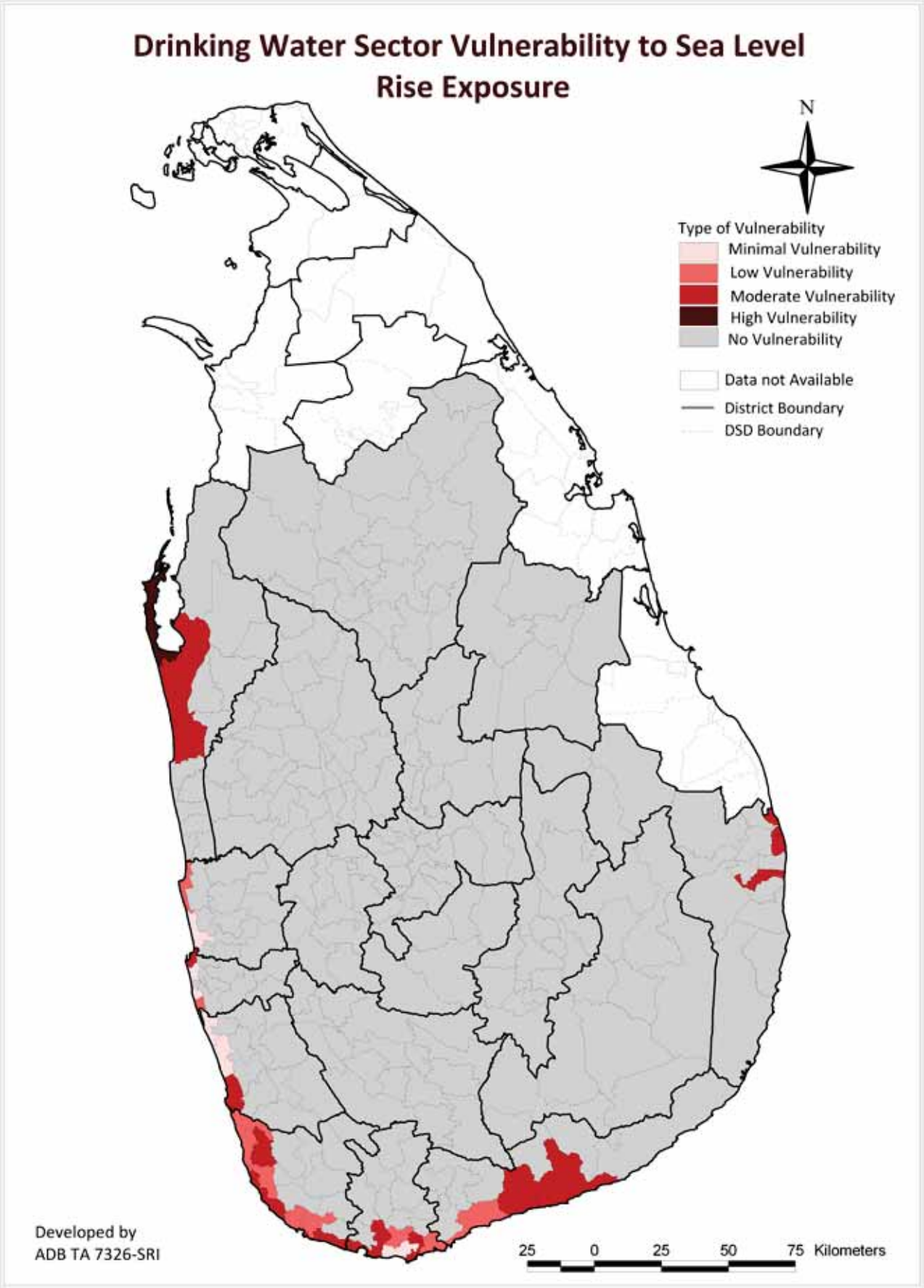
Drinking Water Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity
A composite of data (at DSD level) on: • Percentage of *Grama Niladari* Divisions with more than 2 types of water sources • Percentage of households with primary water source within premises • Incidence of water borne disease • Population density	A composite of data (at DSD level) on: • percentage of people above the globally accepted poverty line • percentage of people who have completed secondary education
Source of raw data: Population and Housing Census, 2001	

Some of the key findings include:

- The drinking water in the north-west and the southern regions emerge as the most vulnerable to sea level rise in the current analysis.
- Kalpitiya DSD in the Puttalam District displays the highest vulnerability. It has:
  - o A population of 81,780 of which 44.3% of persons are below the poverty line.
  - o A high dependence of 86% on various forms of groundwater as their primary source of water.
- Drinking water in a further 17 DSDs showed moderate vulnerability to sea level rise. They had:
  - o a total population of 1,304,608.
  - o 54% household dependency on groundwater.
- 4 of the 17 moderately vulnerable DSDs with the highest incidence of water-borne disease, such as dysentery, are in the Ampara District where education levels are also relatively low.
- It is suspected that vulnerability will be high in the northern and eastern provinces, due to high levels of exposure to sea level rise, but adequate and comparable data sets were not available to perform vulnerability analysis, so that these areas are not included in this analysis.


Drinking Water Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Drinking Water Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
3	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
4	Colombo	Colombo	17.8538	380946	21337	70735	380946	0	0	12.10	32.53
5	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
6	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
7	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
8	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
9	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
10	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
11	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
12	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
13	Matara	Malimbada	47.9781	31524	657	7577	0	31384	140	24.30	31.38
14	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
15	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
16	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
17	Galle	Karandeniya	88.0055	56128	638	14913	0	56128	0	21.90	20.63
18	Matara	Devinuwara	37.6183	44199	1175	9988	0	44199	0	20.90	26.80
19	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
20	Galle	Galle Four Gravets	23.7565	103246	4346	19425	90270	12976	0	19.30	39.96
21	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
22	Galle	Akmeemana	65.4509	63881	976	15110	0	63239	642	22.00	32.21
23	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
24	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
25	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
26	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
27	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87
28	Colombo	Moratuwa	19.2051	177563	9246	41282	177563	0	0	10.30	40.58
29	Galle	Bope-Poddala	29.1730	41612	1426	9732	0	41461	151	18.10	42.27
30	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
31	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
32	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
33	Colombo	Thimbirigasyaya	22.3754	266154	11895	52397	266154	0	0	4.40	49.35
34	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
35	Colombo	Rathmalana	13.1472	108716	8269	25013	108716	0	0	4.20	47.88

Primary Water Source						DSD Name	Rank
Wells[b]	Tubewells[b]	Tap[b]	Other[b]	Wells and Taps within Premises[b]	Wells and Taps outside Premises[b]		
13889	1747	1103	818	8347	5920	Kalpitiya	1
10213	1222	223	1575	4952	4778	Mundalama	2
7202	1	20	278	6483	646	Akkaraipattu	3
3149	866	63741	327	34959	31841	Colombo	4
3319	7	226	57	2887	634	Karativu	5
12052	80	1133	170	5054	7065	Habaraduwa	6
12931	120	2179	249	12489	2422	Kalmunai	7
3016	78	7370	378	5482	4664	Hambantota	8
8555	73	5912	113	8209	5179	Weligama	9
5725	25	289	40	5640	330	Ninthavur	10
8054	1028	5810	354	5968	6238	Ambalantota	11
8081	1443	5207	681	5780	7182	Puttalam	12
6349	120	974	70	4708	1912	Malimbada	13
16223	424	12226	205	14874	10492	Beruwala	14
7358	987	758	700	3545	4458	Arachchikattuwa	15
14516	443	7334	146	9808	10947	Hikkaduwa	16
13931	220	453	173	7386	3509	Karandeniya	17
4590	42	5131	134	6975	2210	Devinuwara	18
6934	110	379	35	4471	2045	Thihagoda	19
4532	137	14326	70	12932	5653	Galle Four Gravets	20
5415	455	8699	326	6255	7096	Tangalle	21
13500	184	1123	156	7642	4956	Akmeemana	22
9913	111	4646	102	8013	5601	Balapitiya	23
6093	3984	20986	325	16316	10694	Negombo	24
9020	105	1781	27	5173	3944	Bentota	25
12497	260	4158	56	9707	5340	Ambalangoda	26
4910	54	6442	85	7502	3365	Dickwella	27
1858	775	37862	88	29404	10214	Moratuwa	28
7482	283	1872	19	5212	3449	Bope-Poddala	29
19067	2519	9515	259	17472	9734	Kaluthara	30
7067	112	16139	157	17355	5176	Matara	31
21028	2021	13401	153	23432	10382	Panadura	32
1184	616	48175	246	29446	19860	Thimbirigasyaya	33
12026	3132	20038	204	20928	10959	Wattala	34
1440	50	22901	80	20045	4265	Rathmalana	35

Irrigation Water

Sri Lanka's inland waters are the most important supply of water for agriculture where irrigation waters are vital for enhancing productivity of the sector. Agriculture and food production contributes about 16% to the national economy. Agriculture in the Wet Zone is mainly rain-fed, due to the considerable reliability and intensity of rainfall regimes in this region and conversely, in the Dry and Intermediate Zones where rainfall is limited, water collected in numerous surface reservoirs is the vital source of water, which supplements water received from the north-east monsoon and inter-monsoonal rains.

The implications of changes in rainfall patterns are numerous, including possible shifts in the demarcation between the Dry and Wet Zones with a reduction in the latter. High intensity rainfall often leads to significant erosion and runoff reducing retention and re-charge as well as creating higher probability of landslides especially in the hills. Unusual flash floods can also damage headworks of irrigation schemes and canal structures which can hinder a reliable water supply.

Reduced rainfall on the other hand can affect seasonal flows of the rivers that originate and flow entirely in the Dry Zone. Prolonged droughts will exacerbate already existing water deficiency issues in these areas. This will, in turn, affect food production significantly as 70% of paddy grown in the country is in the Dry Zone, relying on irrigation. Lowered water levels during low rainfall periods will also have implications on power production as well as water availability for multiple uses in both the Wet and the Dry Zones. The main issue associated with sea level rise is saline intrusion into freshwater bodies especially along the Southern and Eastern coasts of the country. Reduction of river water flows can increase the risk of saltwater intrusion.

The impacts of temperature increase on water availability include increased rates of evaporation and evapo-transpiration. Thus, during drought periods water availability for irrigation will be affected due to high evaporation rates – this is especially true for the Dry Zone tanks and rivers. Increased evaporation and transpiration can also reduce soil moisture, stream flow and groundwater re-charge, thus reducing water available for food production, and increasing the irrigation requirement. Salinization of soil is another potential risk where intensified evaporation coupled with less rain leads to increased salt accumulation in the soil.

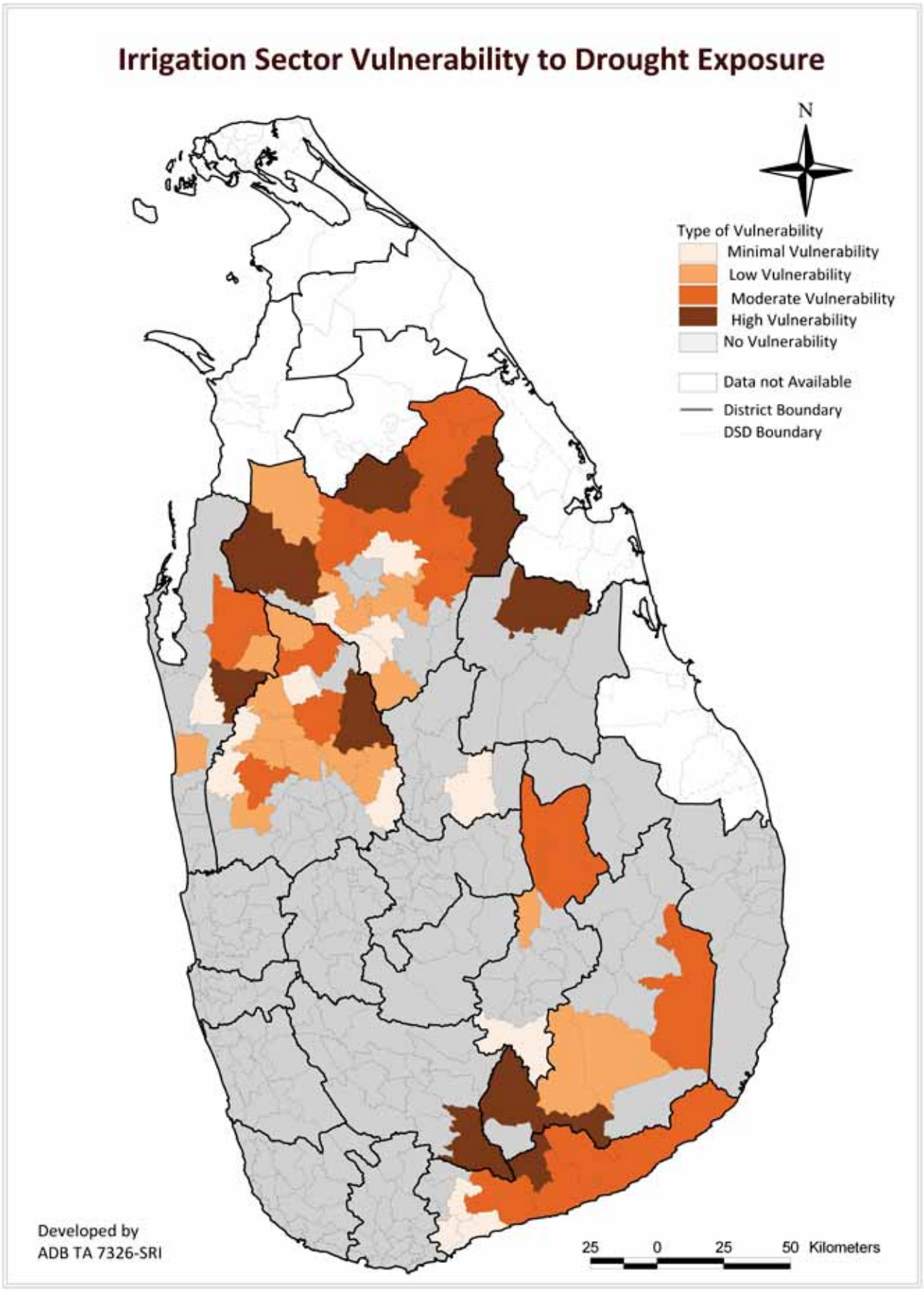
Irrigation Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • number of tanks • area of tanks • total population density	A composite of data (at DSD level) on: • percentage of people above the poverty line • percentage of people who have completed secondary education • percentage non-agricultural employment
Sources of raw data: Survey Department 1:50,000 topographic maps, Population and Housing Census, 2001	

Some of the key findings include:

- Vulnerability of irrigation to expected increases in drought are widespread in the island, but more concentrated in the Dry Zone where there is high dependency on irrigation for agriculture.
- 9 DS Divisions (DSDs) appear to be highly vulnerable in this regard. These DSDs have:
  - 2,375 tanks covering a total area of 240 km^2.
  - a total population of 448,440 people, of whom nearly 25% are below the poverty line
  - about 97,570 people engaged in jobs related to agriculture.
- The 3 most vulnerable DSDs are Thanamalwila, (Moneragala District), Anamaduwa (Puttalam District) and Horowpothana (Anuradhapura District).
  - Historically, the population in these three DSDs are highly vulnerable due to high poverty levels and high exposure to drought. The dependency on agriculture in these DSDs ranges from 28% to 24% of the population.
  - Thanamalwila alone has 464 tanks (the second highest number in the nation per DSD) covering 27.6 km^2.
- A further 18 DSDs are in the moderately vulnerable category. They have:
  - a total population of 789,115 people.
  - 145,880 people with agriculture-based jobs.


Irrigation Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 Kilometers

Irrigation Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
2	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
3	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
4	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
5	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
6	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
7	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
8	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
9	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
10	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
11	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
12	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
13	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
14	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
15	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
16	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
17	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
18	Badulla	Rideemaliyadda	438.2808	45759	104	10681	0	45582	177	51.15	14.89
19	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
20	Hambantota	Angunukolapeles	174.0781	42426	244	10394	0	42426	0	33.00	16.83
21	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
22	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
23	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
24	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
25	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.1420.32	
26	Badulla	Mahiyanganaya	598.4674	67301	112	16499	0	67301	0	38.57	20.02
27	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
28	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
29	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
30	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
31	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
32	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
33	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
34	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85
35	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
36	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
37	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
38	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
39	Moneragala	Buttala	735.5660	47324	64	11843	0	47324	0	21.20	22.01
40	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
41	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
42	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
43	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
44	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
45	Puttalam	Mahakumbukkadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
46	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
47	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
48	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
49	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
50	Matale	Laggala-Pallegama	373.8370	12399	33	3305	0	12055	344	34.60	19.05
51	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
52	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03

Sector Specific Data							DSD Name	Rank
Area of Tanks (Sq. km)[a]	No of Tanks[a]	Irrigation Paddy Area (Acres)[g]	Rainfed Paddy Area (Acres)[g]	Agriculture Employment[b]	% Agri. Employment[a]	HH with Agri. as Primary Source of Income[d and a]		
27.61	464	5085	146	6399	71.65	90.47	Thanamalwila	1
16.62	303	8414	180	5029	42.23	53.90	Anamaduwa	2
49.61	383	14587	3452	7078	67.17	66.38	Horowpothana	3
50.26	401	13470	0	11806	65.34	61.10	Nochchiyagama	4
12.57	316	12276	4804	16728	63.17	64.82	Polpithigama	5
33.41	70	22062	1947	15957	63.87	65.74	Medirigiriya	6
6.39	95	7875	47	9155	66.46	91.26	Suriyawewa	7
5.95	18	3163	119	18476	44.61	59.45	Embilipitiya	8
37.35	325	13929	722	6942	45.31	56.96	Medawachchiya	9
11.43	49	9719	0	8618	42.08	65.72	Ambalantota	10
36.93	263	13344	1433	7335	61.07	65.34	Kahatagasdigiliya	11
11.83	457	8560	1139	8305	34.17	49.50	Panduwasnuwara	12
13.11	80	5533	4438	12160	71.93	72.51	Siyambalanduwa	13
30.41	139	11893	79	7508	38.82	75.66	Tissamaharama	14
25.84	189	13843	946	5825	54.27	60.45	Rambewa	15
31.71	45	8189	578	3504	52.30	72.81	Padaviya	16
14.13	476	8476	3210	9748	48.32	45.30	Mahawa	17
6.27	37	8604	3306	14647	75.27	73.06	Rideemaliyadda	18
20.01	170	7075	86	4418	53.91	57.82	Karuwalagaswewa	19
4.00	99	14498	40	8646	62.15	65.13	Angunukolapeles	20
30.76	175	14527	744	12235	71.60	67.98	Galenbidunuwawe	21
25.02	180	8943	1038	7860	48.13	61.39	Galgamuwa	22
10.35	118	11278	20	4659	56.17	72.23	Lunugamvehera	23
26.75	277	10672	383	4377	56.58	70.38	Kebithigollewa	24
32.23	196	10808	40	6161	30.23	50.32	Nuwaragam Palatha Central	25
16.88	57	17698	3230	15925	60.46	73.06	Mahiyanganaya	26
13.27	115	18184	0	3949	26.25	65.72	Hambantota	27
9.68	41	2916	801	2954	23.69	36.39	Arachchikattuwa	28
2.36	76	2676	2696	5408	22.19	39.13	Kuliyapitiya West	29
17.17	122	9098	111	7598	67.89	82.07	Giribawa	30
13.64	129	4085	20	11478	59.13	69.07	Wellawaya	31
11.15	270	5671	1124	5077	64.23	51.27	Kotawehera	32
18.73	106	12533	35	12371	61.56	68.55	Thalawa	33
23.60	129	5303	47	4617	61.54	63.99	Maha Vilachchiya	34
8.21	352	5678	2580	7233	35.08	42.13	Wariyapola	35
14.97	90	10719	633	8831	72.81	75.20	Palagala	36
0.19	6	3558	84	6095	72.27	88.42	Kandaketiya	37
5.94	221	3324	722	4575	40.87	51.98	Kobeigane	38
17.88	182	7996	516	9228	55.00	70.86	Buttala	39
7.38	111	6395	3333	11965	41.49	48.68	Ibbagamuwa	40
2.81	130	4742	1273	5631	42.10	49.57	Ganewatta	41
11.00	200	7683	620	5508	41.48	51.05	Nikaweratiya	42
24.32	167	6818	544	5981	60.77	60.37	Thirappane	43
6.11	93	5036	25	3347	66.19	76.12	Nawagattegama	44
11.67	95	4166	351	1846	34.49	48.68	Mahakumbukkadawala	45
5.79	164	3269	2493	5029	27.37	38.13	Bingiriya	46
8.54	200	5063	591	3979	52.47	59.67	Ambanpola	47
7.64	56	12756	10	7530	61.92	61.35	Galnewa	48
1.33	28	2073	0	8982	61.86	56.56	Haldummulla	49
0.20	5	2916	171	3708	66.71	64.89	Laggala-Pallegama	50
5.52	112	3684	840	3416	53.49	53.26	Rasnayakapura	51
28.40	151	4910	213	3483	38.67	52.67	Mihintale	52

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
53	Hambantota	Weeraketiya	115.4094	37401	324	9208	0	55459	0	32.50	21.20
54	Anuradhapura	Ipalogama	142.4270	32933	231	8730	0	31992	941	17.41	25.86
55	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
56	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
57	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
58	Hambantota	Beliatta	102.5034	52283	510	12630	0	52283	0	28.30	36.26

Sector Specific Data							DSD Name	Rank
Area of Tanks (Sq. km)[a]	No of Tanks[a]	Irrigation Paddy Area (Acres)[g]	Rainfed Paddy Area (Acres)[g]	Agriculture Employment[b]	% Agri. Employment[a]	HH with Agri. as Primary Source of Income[d and a]		
3.75	63	4001	82	4818	42.74	61.13	Weeraketiya	53
9.37	69	8584	215	6284	52.10	56.24	Ipalogama	54
5.54	41	7687	0	9073	58.46	75.39	Thambuttegama	55
2.92	90	4547	7	4235	21.52	45.96	Tangalle	56
0.48	23	2844	4386	8311	31.92	46.08	Rideegama	57
0.75	33	2409	1117	2703	19.03	50.75	Beliatta	58

Agriculture and Fisheries

Agriculture and livestock are important sectors for the national development of Sri Lanka. The government developmental policies envisage an agricultural renaissance, with special attention on the paddy farmer. The aim is to achieve self sufficiency in food crops and milk for the people, and also to generate agricultural crops and livestock for the export market. The fishery sector on the other hand, earns valuable foreign exchange through the export of marine and aquaculture products, and provides direct employment to 208,731 people island wide, while sustaining over 2.5 million people. The fishery sector is important as a livelihood source as well as a source of protein for the people of Sri Lanka.

Paddy

The gross total extent of paddy land cultivation in 2009 was approximately 980,000 ha for the whole country during both Yala and Maha seasons. Sri Lanka's paddy fields are both rainfed and irrigated where paddies in the Dry Zone are rain-fed from the North-East monsoon during the Maha season and irrigated in the Yala season. Paddy fields in the Wet Zone are mostly rainfed. The national paddy production is currently adequate to satisfy the country's domestic requirements. However, a reduction in the production in of rice (by 5.8%) was observed in 2009 compared to the highest ever production of 3.87 million MT in 2008. This was mainly due to insufficient water for cultivation during the Yala season due to delayed monsoon rains. There is already recognition that the country needs to adapt or prepare itself for the implications of future climate change. Very high genetic variation among indigenous rice varieties is an indicator of excellent potential for varietal improvement for adaptation. The need for development of different age groups of paddy (short term and long term varieties) to suit unpredictable rainfall regimes is also recognized by the Department of Agriculture. Already several New Improved Varieties with varying yield times have been developed. Overall, the extent of paddy lands has increased since the establishment of peace, due to the re-use of a large extent of abandoned paddy lands in the Northern and Eastern Provinces.

Saline intrusion due to sea level rise and storm surges are bound to exacerbate with lowered river flows during drought which are expected to increase with climate change. In coastal areas, surface and groundwater will be affected, restricting freshwater availability for farming communities and agricultural activities leading to reduced agricultural productivity. Salt water intrusion may be felt up to considerable distances inland along rivers discharging to the sea, and could degrade arable coastal land, particularly paddy fields, causing them to be abandoned. Paddy lands in Kalutara, Batticaloa and the northern peninsula are expected to be most at risk.

The higher variability of rainfall due to climate change will adversely affect some agro-ecological regions, and hence affect rice production – especially rainfed paddy comprising over 30% of all rice paddies in the country. The Dry Zone, where nearly 70% of the paddy is cultivated in Sri Lanka, is already showing an increasing number of consecutive dry days due to rainfall variability. Further incidences of drought and variability in rainfall is bound to adversely affect paddy yields. This may cause serious socio-economic impacts and imperil the future food security of the country. Similarly, high intensity rainfall and prolonged floods can also cause destruction to paddy.

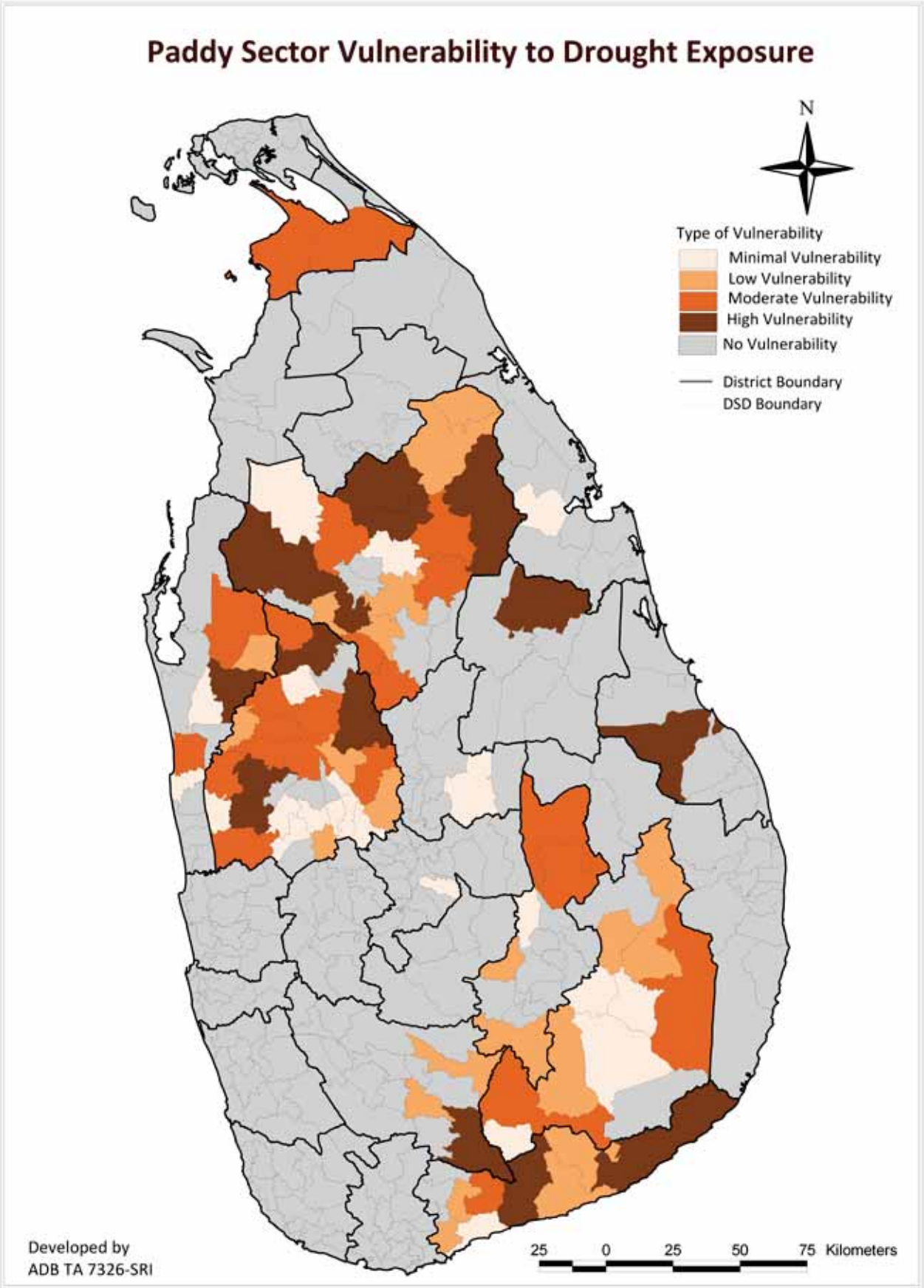
Paddy Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
Data (at DSD level) on: • Area of paddy cultivation (Asveddumized paddy)	A composite of data (at DSD level) on: • Percentage of people employed in agriculture with education below O/L • Percentage of landless paddy farmers • Percentage agriculture share in income (among those employed in agriculture) • Percentage of paddy land not fed by major irrigation
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- Vulnerability to the increase in droughts expected due to climate change is widespread throughout the country and is concentrated in the Dry and Intermediate Zones.
- 16 DSDs emerge as highly vulnerable to drought exposure. These DSDs have:
  - 100,317 households with agriculture as primary source of income.
  - 400,973 ac of agricultural lands of which 176,852 ac (44.1%) are cultivated with paddy.
  - 3153 tanks covering a total area of 88,395 ac.
- Anamaduwa (Puttalam District), Ambalantota (Hambantota District), and Polpithigama (Kurunegala District) emerge as the DSDs most vulnerable.
  - In these DSDs farmers, on average, earn 63% of their income from agriculture.
- A further 23 DSDs emerge as moderately vulnerable to drought exposure. These DSDs have:
  - 195,573 agricultural operators.
  - 174,839 ac of paddy lands.
  - 3,901 tanks covering a total area of 80,675 ac.


Paddy Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Paddy Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
2	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
3	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
4	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
5	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
6	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
7	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
8	Batticaloa	Eravur Pattu	612.3070								
9	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
10	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
11	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
12	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
13	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
14	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
15	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
16	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
17	Badulla	Mahiyanganaya	598.4674	67301	112	16499	0	67301	0	38.57	20.02
18	Hambantota	Angunukolapeles	174.0781	42426	244	10394	0	42426	0	33.00	16.83
19	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
20	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
21	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
22	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
23	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
24	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
25	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
26	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
27	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
28	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
29	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
30	Badulla	Rideemaliyadda	438.2808	45759	104	10681	0	45582	177	51.15	14.89
31	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
32	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
33	Kilinochchi	Poonakary	558.4683								
34	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
35	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
36	Kilinochchi	Karachchi	621.6203								
37	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.14	20.32
38	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
39	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
40	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
41	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
42	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
43	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
44	Moneragala	Madulla	722.5206	28358	39	6678	0	28358	0	40.70	19.44
45	Rathnapura	Godakawela	155.7512	69123	444	16962	0	57669	11454	38.20	20.31
46	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
47	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
48	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
49	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
50	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
51	Hambantota	Weeraketiya	115.4094	37401	324	9208	0	55459	0	32.50	21.20
52	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46

Land Utilization within Agricultural Holdings						Sector Specific Data						DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Rainfed Paddy (Acres)[g]	Irrigated Paddy (Acres)[g]	Non Paddy Temp. Crops (Acres)[d]	Total Population of Agri. hh (5 ac - le than 10 Acres)[d]	Total Agri. Operators [d]	HH with Agri. as Primary Source of Income[d]		
19439	7347	2231	6221	2310	1330	180	8414	2231	3001	7445	3993	Anamaduwa	1
21017	12198	2162	4872	487	1298	0	9719	2162	3126	8966	5898	Ambalantota	2
39693	14325	5177	15404	2423	2364	4804	12276	5177	5520	16447	10625	Polpithigama	3
41930	8551	7968	18816	3544	3051	119	3163	7968	5028	20930	12435	Embilipitiya	4
29714	17124	1313	6803	1544	2930	1947	22062	1313	531	13352	6945	Medirigiriya	5
19648	3955	327	13803	306	1257	2696	2676	327	2346	11354	4442	Kuliyapitiya West	6
25927	16434	1518	5055	1134	1786	35	4030	1518	3091	11281	7668	Thalawa	7
18955	14352	2420	1190	192	801	21735	12484	2420	4444	3580	2894	Eravur Pattu	8
19629	5970	8671	2541	1105	1342	47	2137	8671	3738	7383	6587	Suriyawewa	9
28170	7642	299	18435	175	1619	1139	8560	299	3465	12558	6308	Panduwasnuwara	10
23135	12180	4081	3603	1230	2041	0	4569	4081	3041	9310	5763	Nochchiyagama	11
22207	14557	2079	2848	1345	1378	3452	14587	2079	4971	7054	4673	Horowpothana	12
19398	9526	4094	3604	1145	1029	79	11893	4094	3214	8302	6359	Tissamaharama	13
23828	10674	4492	4543	1650	2469	722	13929	4492	4187	9215	5252	Medawachchiya	14
27216	10496	4503	5420	5274	1523	1038	8943	4503	4564	10553	6499	Galgamuwa	15
21067	11521	2556	3285	1869	1836	946	13843	2556	4850	6575	3976	Rambewa	16
30387	17054	4433	5967	1501	1432	3230	17698	4433	2231	12698	9390	Mahiyanganaya	17
20551	10185	2450	5781	1164	971	40	5478	2450	3292	8740	5662	Angunukolapeles	18
38422	8283	15734	8557	3505	2343	4438	5533	15734	11625	10293	7417	Siyambalanduwa	19
25773	13205	4173	4899	1163	2333	744	14527	4173	4082	9726	6569	Galenbidunuwawe	20
19794	9691	3697	3420	1198	1788	1433	13344	3697	3115	8240	5370	Kahatagasdigiliya	21
24713	6362	721	15298	1175	1157	2580	5678	721	3234	11060	4687	Wariyapola	22
14837	8887	1166	2664	630	1490	10	2083	1166	1334	6943	4289	Galnewa	23
23214	8071	435	12640	516	1552	3333	6395	435	2067	12336	6030	Ibbagamuwa	24
30696	8370	4699	12250	2950	2427	3210	8476	4699	4805	11949	5423	Mahawa	25
20070	7036	2228	6215	3141	1450	620	7683	2228	3032	7759	3917	Nikaweratiya	26
15533	3322	754	9834	641	982	722	3324	754	2021	6736	3498	Kobeigane	27
15762	8706	1883	3423	675	1075	633	5192	1883	1599	6993	5251	Palagala	28
16632	7581	2002	3714	2147	1188	111	9098	2002	2704	6404	5121	Giribawa	29
30443	10010	7997	8344	2486	1606	3306	8604	7997	6119	10178	7405	Rideemaliyadda	30
22151	4228	254	15339	756	1574	2493	3269	254	2102	11983	4556	Bingiriya	31
17991	5523	2511	3784	5523	650	1124	5671	2511	3806	5031	2556	Kotawehera	32
8795	4729	1805	1780	254	227	10065	1359	1805	2475	2388	2013	Poonakary	33
13234	2651	395	7448	1361	1379	801	2916	395	1802	5904	2146	Arachchikattuwa	34
12040	5002	960	3103	1735	1240	86	7075	960	1942	4143	2404	Karuwalagaswewa	35
19741	9284	3413	5023	419	1602	3635	17755	3413	5102	7544	5707	Karachchi	36
19849	6771	4027	4281	1341	3429	40	10808	4027	2589	8773	4393	Nuwaragam Palatha Central	37
28284	5721	334	19461	493	2275	6736	1527	334	3183	14161	6066	Pannala	38
17167	4167	6306	4227	989	1478	146	5085	6306	2598	5591	5097	Thanamalwila	39
17071	9384	3363	1401	2391	532	20	11278	3363	1715	6199	4289	Lunugamvehera	40
11482	5179	2757	1151	1059	1336	0	7337	2757	2073	4728	3070	Hambantota	41
15663	4921	789	7694	622	1637	1273	4742	789	2127	6875	3368	Ganewatta	42
12461	8231	333	2678	693	526	383	10672	333	2102	4412	3118	Kebithigollewa	43
24796	3021	6804	9961	3466	1544	2308	1065	6804	7763	6232	5041	Madulla	44
13977	1648	175	10209	1116	829	578	1727	175	1360	8053	4561	Godakawela	45
26197	5572	256	17773	860	1736	4386	2844	256	2865	13473	6174	Rideegama	46
13577	7117	1286	2630	1529	1015	578	8189	1286	4677	4355	3186	Padaviya	47
11094	1834	808	5175	2144	1133	0	2073	808	1245	4867	2734	Haldummulla	48
26611	3143	11708	7443	1473	2844	20	4085	11708	3943	10885	7636	Wellawaya	49
14783	11040	79	2725	240	699	0	0	79	1059	6592	5025	Thambuttegama	50
17631	3603	1226	11507	567	728	937	1918	1226	2346	7868	4664	Weeraketiya	51
12430	3066	1524	5133	2099	608	840	3684	1524	2420	4400	2309	Rasnayakapura	52

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
53	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
54	Moneragala	Medagama	241.1373	32467	135	7664	0	32467	0	30.20	14.89
55	Kurunegala	Polgahawela	97.3861	58762	603	14506	0	57940	822	22.91	35.64
56	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
57	Hambantota	Beliatta	102.5034	52283	510	12630	0	52283	0	28.30	36.26
58	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
59	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
60	Anuradhapura	Ipalogama	142.4270	32933	231	8730	0	31992	941	17.41	25.86
61	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03
62	Kurunegala	Kurunegala	111.0680	88944	801	20292	28401	60369	174	14.70	44.87
63	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85
64	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
65	Moneragala	Buttala	735.5660	47324	64	11843	0	47324	0	21.20	22.01
66	Badulla	Kandaketiya	152.6207	22494	147	5425	0	21428	1066	46.10	14.56
67	Matale	Laggala-Pallegama	373.8370	12399	33	3305	0	12055	344	34.60	19.05
68	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
69	Puttalam	Mahakumbukkadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
70	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57
71	Kurunegala	Narammala	108.3197	51244	473	13092	0	51244	0	21.40	33.36
72	Moneragala	Badalkumbura	235.9900	36784	156	9030	0	32733	4051	27.90	23.53
73	Moneragala	Sewanagala	191.9569	36820	192	9221	0	35739	1081	19.30	20.35
74	Kandy	Pathahewaheta	83.5016	53843	645	13229	0	51531	2312	26.60	30.92
75	Kurunegala	Mawathagama	109.6233	56820	518	14191	0	55013	1807	24.92	33.95
76	Moneragala	Moneragala	292.5414	42457	145	10071	0	39112	3345	29.30	23.23
77	Kurunegala	Weerambugedara	91.3110	30311	332	8085	0	30311	0	20.11	39.05
78	Trincomalee	Thampalakamam	267.0782								
79	Kurunegala	Mallawapitiya	79.9307	46575	583	11574	0	46240	335	19.50	33.19
80	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
81	Kurunegala	Ududdawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43

Land Utilization within Agricultural Holdings						Sector Specific Data						DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Rainfed Paddy (Acres)[g]	Irrigated Paddy (Acres)[g]	Non Paddy Temp. crops (Acres)[d]	Total Population of Agri. hh (5 ac - le than 10 Acres)[d]	Total Agri. Operators [d]	HH with Agri. as Primary Source of Income[d]		
14085	3627	6531	2852	322	753	156	3805	6531	845	11379	8683	Uva Paranagama	53
16651	3619	1459	9107	1518	948	2748	1789	1459	1916	7157	4789	Medagama	54
12562	3901	87	7784	208	582	4801	413	87	1532	7042	3080	Polgahawela	55
14577	5747	3599	2562	1942	727	544	6818	3599	2292	5472	3315	Thirappane	56
17204	3048	237	12539	433	947	1117	2409	237	2691	7353	3713	Beliatta	57
8997	4601	759	1577	1581	479	25	5036	759	1042	3200	2435	Nawagattegama	58
16543	3312	1441	8455	1569	1766	670	3655	1441	1284	9813	6643	Balangoda	59
13323	6996	986	3160	1182	999	215	8584	986	1692	6007	3350	Ipalogama	60
12435	4175	2539	2966	1177	1578	213	4910	2539	2304	4877	2517	Mihintale	61
11182	3746	93	6361	184	798	3450	1500	93	1342	5415	1845	Kurunegala	62
13869	4070	5595	2532	329	1343	47	5303	5595	3246	4385	2813	Maha Vilachchiya	63
19264	3547	3667	8251	1846	1953	7	4547	3667	2945	8228	3786	Tangalle	64
24273	4498	4518	10146	1947	3164	516	7996	4518	6500	8719	6013	Buttala	65
8204	3749	578	2430	981	466	84	3558	578	627	3983	3544	Kandaketiya	66
7179	2825	349	2049	1263	693	171	2916	349	667	2868	1861	Laggala-Pallegama	67
12224	3757	2344	3003	2551	569	591	5063	2344	2047	4421	2645	Ambanpola	68
15837	2774	1157	6127	4285	1494	351	4166	1157	3297	4195	2025	Mahakumbukkadawala	69
13572	4006	73	8712	124	657	3435	1745	73	1639	6453	2805	Kuliyapitiya East	70
13216	3426	94	8399	216	1081	3899	561	94	1400	7445	2196	Narammala	71
17567	1615	1987	10035	2223	1707	297	1774	1987	2100	7637	5098	Badalkumbura	72
20748	3883	3578	8687	2974	1626	20	1265	3578	2	7566	6223	Sewanagala	73
8610	1732	1745	3843	543	747	42	2217	1745	635	5769	3262	Pathahewaheta	74
11687	2878	103	7484	376	846	3823	413	103	1258	6280	2003	Mawathagama	75
18742	1693	5256	7137	1332	3324	1302	969	5256	4172	6972	3873	Moneragala	76
11477	3303	55	7461	143	515	3810	430	55	1484	5273	1891	Weerambugedara	77
4281	3062	148	650	116	305	1552	5540	148	1412	1236	936	Thampalakamam	78
8328	2217	72	5323	157	559	2918	269	72	1055	4986	1431	Mallawapitiya	79
8185	1775	493	4984	316	617	759	1539	493	1019	3731	1524	Chilaw	80
13974	2401	74	10408	173	918	1416	1856	74	1645	7392	2482	Ududdawa	81

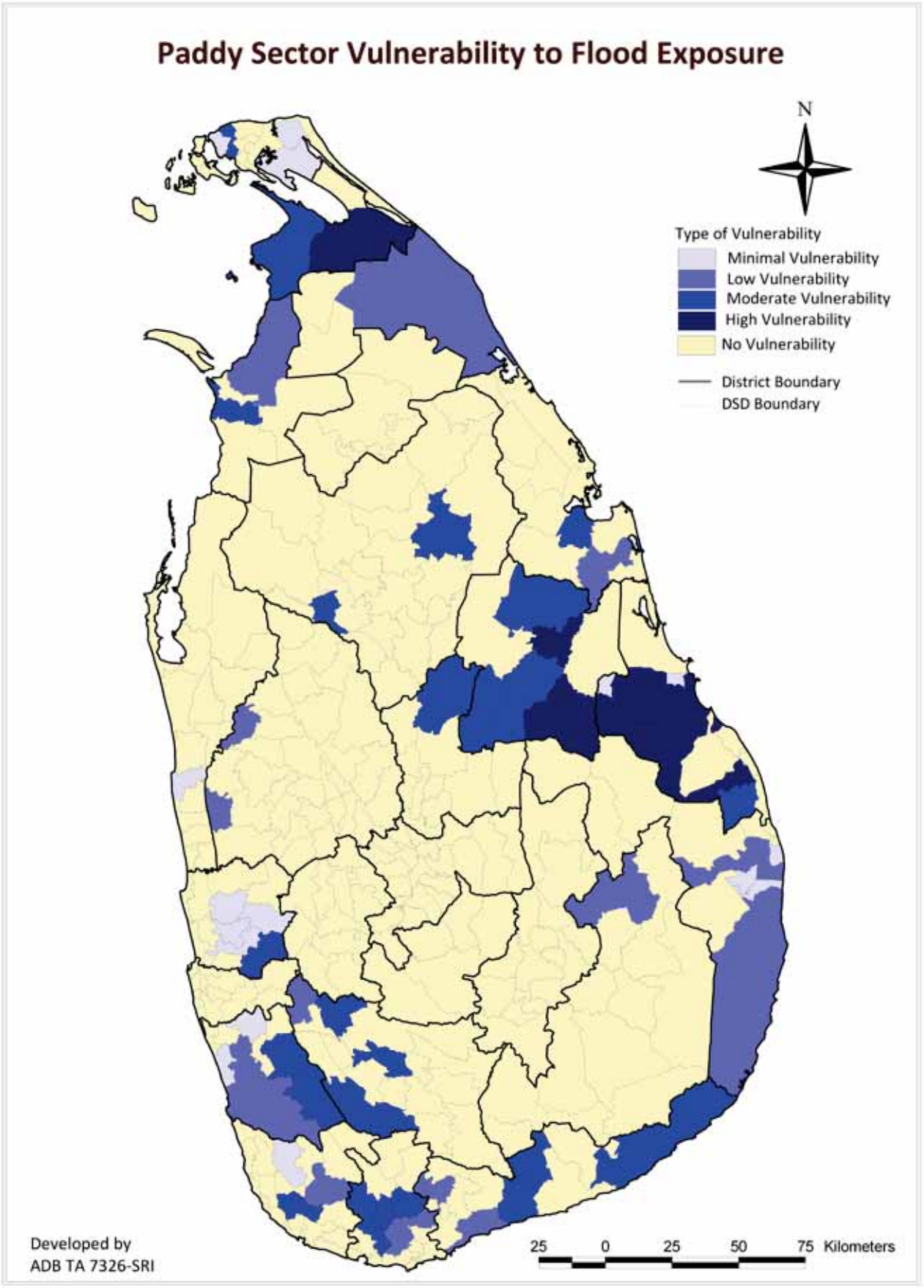
Paddy Sector Vulnerability to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
Data (at DSD level) on: • Area of paddy cultivation (Asveddumized paddy)	A composite of data (at DSD level) on: • Percentage of people employed in agriculture with education below O/L • Percentage of landless paddy farmers • Percentage agriculture share in income (among those employed in agriculture) • Percentage of paddy land not fed by major irrigation
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- 6 DSDs emerge as highly vulnerable to the increase in floods expected due to climate change. These DSDs have:
  - 114,555 ac of agricultural lands of which 81,890 ac (71.5%) are cultivated with paddy.
  - 27,557 households with agriculture as primary source of income.
  - 283 tanks covering an area of 16,717 ac.
- A further 25 DSDs emerge as moderately vulnerable to flood exposure. These DSDs have
  - 156,650 ac of paddy lands, and
  - 109,052 households with agriculture as primary source of income.


Paddy Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Paddy Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Polonnaruwa	Dimbulagala	552.3964	63349	115	16757	0	63339	10	22.59	18.60
2	Batticaloa	Eravur Pattu	612.3070								
3	Kilinochchi	Karachchi	621.6203								
4	Batticaloa	Manmunai South - West	150.8018								
5	Batticaloa	Koralai Pattu (Valach.)	593.7964								
6	Polonnaruwa	Lankapura	200.7756	33676	168	8611	0	33676	0	14.54	19.42
7	Matara	Mulatiyana	119.4139	46066	386	11169	0	45501	565	30.90	21.41
8	Matara	Akuressa	148.6167	49806	335	11825	0	48508	1298	21.90	24.28
9	Polonnaruwa	Thamankaduwa	465.7376	74224	159	17920	0	73956	268	14.15	28.23
10	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
11	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
12	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
13	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
14	Polonnaruwa	Elahera	353.1772	39908	113	10446	0	39908	0	18.45	17.46
15	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
16	Trincomalee	Kinniya	151.4995								
17	Rathnapura	Kalawana	384.7488	48669	126	11905	0	44632	4037	36.40	23.93
18	Matara	Malimbada	47.9781	31524	657	7577	0	31384	140	24.30	31.38
19	Rathnapura	Kuruwita	174.6734	85882	492	20460	0	80326	5556	28.90	23.57
20	Jaffna	Sandilipay	48.1604								
21	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
22	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
23	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
24	Galle	Baddegama	114.4507	68634	600	16761	0	66249	2385	21.70	30.17
25	Kilinochchi	Poonakary	558.4683								
26	Batticaloa	Porativu Pattu	174.9570								
27	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
28	Matara	Athuraliya	65.9339	30179	458	7039	0	29380	799	27.80	26.77
29	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
30	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
31	Mannar	Nanaddan	147.6092								
32	Ampara	Samanthurai	123.0101	51510	419	11729	0	51510	0		20.13
33	Matara	Hakmana	49.6219	30201	609	7190	0	30201	0	32.00	29.15
34	Ampara	Alayadiwembu	82.5912	22627	274	4956	0	22627	0		22.67
35	Mannar	Manthai West	609.4103								
36	Ampara	Pothuvil	271.8310	28480	105	6693	0	28480	0		13.45
37	Kalutara	Walallawita	213.2047	50676	238	12793	0	47579	3097	31.40	25.28
38	Ampara	Thirukkovil	187.0859	23700	127	5427	0	23700	0		20.88
39	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
40	Matara	Kaburupitiya	59.7187	37347	625	9079	0	37347	0	24.90	31.28
41	Mulattivu	Pudukudiyirippu	1002.7885								
42	Mulattivu	Maritimepattu	756.2531								
43	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
44	Ampara	Lahugala	923.3049	7623	8	1888	0	7623	0		15.57
45	Kalutara	Millaniya	82.0638	44476	542	11035	0	43110	1366	16.90	30.71
46	Moneragala	Bibila	483.5204	35490	73	8817	0	34818	672	26.00	17.05
47	Galle	Nagoda	174.6178	52414	300	13028	0	46707	5707	28.70	23.04
48	Kalutara	Dodangoda	112.8241	55052	488	13646	0	47970	7082	21.20	27.42
49	Ampara	Ampara	139.2692	38166	274	8713	17957	20209	0		30.45
50	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
51	Ampara	Addalachchenai	56.9586	36020	632	7640	0	36020	0		17.64
52	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
53	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43

Land Utilization within Agricultural Holdings						Sector Specific Data						DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Rainfed Paddy (Acres)[g]	Irrigated Paddy (Acres)[g]	Non Paddy Temp. crops (Acres)[d]	Total population of Agri. hh (5 ac - le than 10 Acres)[d]	Total Agri. Operators [d]	HH with Agri. as Primary Source of Income[d]		
39611	29574	923	5147	1737	2230	0	33515	923	356	7230	10198	Dimbulagala	1
18955	14352	2420	1190	192	801	21735	12484	2420	4444	3580	2894	Eravur Pattu	2
19741	9284	3413	5023	419	1602	3635	17755	3413	5102	7544	5707	Karachchi	3
8612	7828	453	227	12	92	8849	6652	453	1874	2314	2178	Manmunai South-West	4
10216	7914	1387	682	36	197	0	57	1387	2020	2394	1892	Koralai Pattu (Valach.)	5
17420	12938	440	2206	449	1387	247	14629	440	579	5537	4688	Lankapura	6
16471	2755	314	11541	774	1087	2004	1043	314	428	8690	4414	Mulatiyana	7
13970	3170	325	8464	593	1418	2674	1451	325	253	8036	5426	Akuressa	8
20085	13660	761	3640	831	1193	138	16781	761	547	6799	4698	Thamankaduwa	9
12035	1886	144	8299	619	1087	803	1804	144	1040	8321	4873	Pelmadulla	10
29714	17124	1313	6803	1544	2930	1947	22062	1313	531	13352	6945	Medirigiriya	11
21017	12198	2162	4872	487	1298	0	9719	2162	3126	8966	5898	Ambalantota	12
22102	3984	1028	15526	421	1143	3899	877	1028	2451	12061	4120	Dompe	13
20168	12708	736	3251	938	2535	460	14559	736	193	10584	5410	Elahera	14
25755	9287	6624	6496	2218	1130	815	10386	6624	3680	10295	6251	Dambulla	15
2502	1750	377	253	26	96	2807	3319	377	463	1254	1011	Kinniya	16
19905	2140	134	13315	2853	1463	1848	1290	134	2705	8389	6556	Kalawana	17
6462	2770	57	2804	135	696	2128	724	57	141	3995	1258	Malimbada	18
12810	1798	403	8557	678	1374	1834	2273	403	1015	7983	4494	Kuruwita	19
2822	1671	325	630	6	190	0	0	325	71	2660	1657	Sandilipay	20
18827	3384	712	12196	1202	1333	4203	346	712	2115	8938	4490	Bulathsinhala	21
19398	9526	4094	3604	1145	1029	79	11893	4094	3214	8302	6359	Tissamaharama	22
19794	9691	3697	3420	1198	1788	1433	13344	3697	3115	8240	5370	Kahatagasdigiliya	23
13506	4143	189	11495	690	1235	4910	0	189	1339	9296	3996	Baddegama	24
8795	4729	1805	1780	254	227	10065	1359	1805	2475	2388	2013	Poonakary	25
10142	8144	1007	661	59	271	8169	14273	1007	1230	3507	2542	Porativu Pattu	26
19411	2755	345	12708	2009	1594	2854	618	345	2136	7951	5738	Palindanuwara	27
7839	2713	104	3890	382	750	1161	1999	104	153	4620	2197	Athuraliya	28
19629	5970	8671	2541	1105	1342	47	2137	8671	3738	7383	6587	Suriyawewa	29
14783	11040	79	2725	240	699	0	0	79	1059	6592	5025	Thambuttegama	30
9131	7654	322	615	64	476	0	11051	322	1797	2078	1724	Nanaddan	31
11331	10933	77	191	2	128	662	21602	77	2221	2250	1685	Samanthurai	32
9322	2360	81	6004	196	681	1485	1203	81	349	4387	1779	Hakmana	33
6310	5947	32	138	78	115	1688	14031	32	825	984	770	Alayadiwembu	34
5343	3660	558	603	168	354	25	6635	558	1094	1488	1357	Manthai West	35
3875	3688	10	83	51	43	7416	8883	10	1121	797	521	Pothuvil	36
21882	4525	254	13637	1700	1766	4226	282	254	2663	9560	4821	Walallawita	37
3260	2706	122	390	4	38	6084	5105	122	545	812	565	Thirukkovil	38
11761	1754	798	7870	639	700	902	1357	798	843	6739	1825	Eheliyagoda	39
9051	2874	30	5185	223	739	1559	2172	30	262	5283	1325	Kaburupitiya	40
12353	3567	3694	4488	132	472	2375	2721	3694	2598	4541	3959	Pudukudiyirippu	41
8473	4421	1157	2248	99	548	3917	5108	1157	1840	2299	1829	Maritimepattu	42
12430	3066	1524	5133	2099	608	840	3684	1524	2420	4400	2309	Rasnayakapura	43
5107	2901	1116	651	234	205	811	3012	1116	1115	1289	870	Lahugala	44
7966	2849	226	4012	226	653	2847	437	226	1035	4034	1512	Millaniya	45
16988	3750	1886	8254	1322	1776	1110	2970	1886	2245	7370	4355	Bibila	46
14097	2915	86	14296	585	1493	3116	284	86	1064	1856	6354	Nagoda	47
6716	2297	201	3384	207	627	2978	141	201	804	3619	758	Dodangoda	48
9208	5294	734	1780	800	600	304	5471	734	1643	3575	2283	Ampara	49
19264	3547	3667	8251	1846	1953	7	4547	3667	2945	8228	3786	Tangalle	50
5081	4445	174	362	30	70	1181	9103	174	1004	1258	894	Addalachchenai	51
7192	3835	68	2705	118	466	1011	4015	68	189	3904	1340	Thihagoda	52
13974	2401	74	10408	173	918	1416	1856	74	1645	7392	2482	Ududaddawa	53

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
54	Kalutara	Mathugama	134.3624	73269	545	17604	0	66781	6488	29.40	28.65
55	Trincomalee	Seruvila	270.3615								
56	Kalutara	Agalawatta	89.7814	33962	378	8423	0	32768	1194	26.40	33.03
57	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
58	Hambantota	Walasmulla	109.0750	39010	358	9443				33.40	23.96
59	Gampaha	Minuwangoda	133.2225	151661	1138	37683	7567	144084	10	12.50	38.36
60	Gampaha	Gampaha	90.6959	171040	1886	41357	9284	161756	0	9.90	43.27
61	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
62	Kalutara	Horana	112.7795	90690	804	22048	9127	80042	1521	8.40	42.98
63	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
64	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
65	Gampaha	Attanagalla	154.3057	154967	1004	36838	0	154821	146	15.40	39.55
66	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
67	Ampara	Eragama	66.6480	11344	170	2632	0	11344	0		13.35
68	Jaffna	Chavakachcheri	222.1802								
69	Gampaha	Mahara	94.2988	176870	1876	41639	0	176870	0	12.10	37.86
70	Galle	Elpitiya	151.2593	60292	399	15049	0	58153	2139	22.70	26.49
71	Jaffna	Chankanai	48.0547								
72	Jaffna	Karaveddy	90.6898								
73	Batticaloa	Koralai P.W. (Oddamavadi)	39.1499								

Land Utilization within Agricultural Holdings						Sector Specific Data						DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Rainfed Paddy (Acres)[g]	Irrigated Paddy (Acres)[g]	Non Paddy Temp. Crops (Acres)[d]	Total population of Agri. hh (5 ac - le than 10 Acres)[d]	Total Agri. Operators [d]	HH with Agri. as Primary Source of Income[d]		
10764	3593	239	5051	619	1262	3291	603	239	1060	6193	1563	Mathugama	54
4652	2990	202	750	370	340	1236	5980	202	693	1667	1368	Seruvila	55
9712	2354	223	5536	716	883	1930	882	223	921	4866	2090	Agalawatta	56
7898	2245	363	3726	377	1187	1569	136	363	777	5611	984	Beruwala	57
16836	2349	333	12497	631	1026	82	4001	333	2216	7513	4666	Walasmulla	58
18244	3096	133	12919	192	1904	3042	892	133	2144	10860	2526	Minuwangoda	59
9476	2737	98	5656	77	908	1107	2165	98	809	7107	1759	Gampaha	60
6461	6170	23	187	9	72	163	11293	23	2281	2117	1162	Akkaraipattu	61
11716	3506	314	6732	227	937	3608	1008	314	997	7063	2027	Horana	62
4693	4376	12	262	1	42	0	0	12	676	915	641	Ninthavur	63
8185	1775	493	4984	316	617	759	1539	493	1019	3731	1524	Chilaw	64
16611	3170	355	11503	362	1221	3267	717	355	1797	9911	2614	Attanagalla	65
6180	2279	234	2775	235	657	1206	37	234	689	3731	703	Kaluthara	66
2958	2585	17	276	2	78	494	5340	17	531	606	361	Eragama	67
10518	4694	1048	3643	452	681	0	0	1048	970	6442	4237	Chavakachcheri	68
11556	2340	301	7330	157	1428	2884	306	301	1406	6534	1718	Mahara	69
15855	4368	317	13917	1040	1354	0	0	317	1413	5418	4544	Elpitiya	70
2540	1858	128	419	2	133	0	0	128	52	1799	894	Chankanai	71
3110	1920	546	402	16	226	0	0	546	104	2372	1291	Karaveddy	72
2056	1979	12	27	2	36	91	3324	12	1543	654	397	Koralai P.W. (Oddamavadi)	73

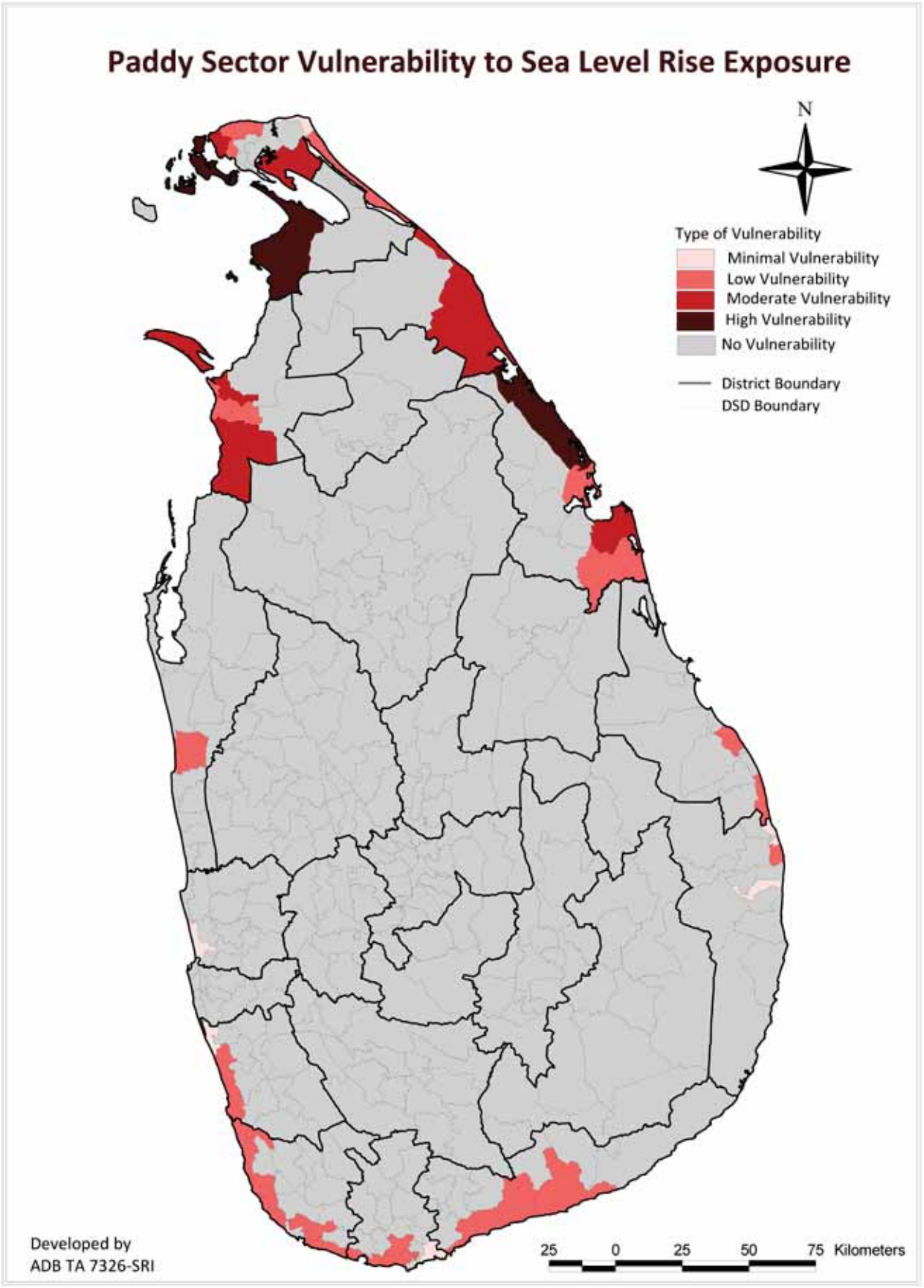
Paddy Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
Data (at DSD level) on: • Area of paddy cultivation (Asveddumized paddy) within 5km from the coast line	A composite of data (at DSD level) on: • Percentage of people employed in agriculture with education below O/L • Percentage of landless paddy farmers • Percentage agriculture share in income (among those employed in agriculture) • Percentage of paddy land not fed by major irrigation
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- The highest levels of paddy sector vulnerability to sea level rise exposure appear to be concentrated in the North/Northeast of the island.
- 4 DSDs emerge highly vulnerable to sea level rise, all of which are in the Northern part of the country. These 4 DSDs have:
    - o A total paddy cultivation area of 5,898 ac of which 16.4% are located within 5 km from the coastline and below 2m.
- A further 6 DSDs, also in the Northern part of the country, emerge as having moderate vulnerability. These 6 DSDs have:
    - o A total paddy cultivation area of 730 ac of which 1.8% are located within 5 km from the coastline and below 2m.
    - o 4,394 jobs in agriculture.


Paddy Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Paddy Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Trincomalee	Kuchaveli	434.4600								
2	Jaffna	Velanai	85.4797								
3	Jaffna	Kayts	55.2340								
4	Kilinochchi	Poonakary	558.4683								
5	Jaffna	Chavakachcheri	222.1802								
6	Mannar	Mannar Town	207.1215								
7	Mulattivu	Maritimepattu	756.2531								
8	Trincomalee	Muttur	194.6406								
9	Jaffna	Chankanai	48.0547								
10	Mannar	Musalai	478.8201								
11	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
12	Batticaloa	Manmunai S. and Eruvilpattu	59.7398								
13	Trincomalee	Eachchilampattai	100.2010								
14	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
15	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
16	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
17	Mannar	Nanaddan	147.6092								
18	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
19	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
20	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
21	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
22	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
23	Galle	Akmeemana	65.4509	63881	976	15110	0	63239	642	22.00	32.21
24	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
25	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
26	Galle	Bope-Poddala	29.1730	41612	1426	9732	0	41461	151	18.10	42.27
27	Trincomalee	Seruvila	270.3615								
28	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
29	Jaffna	Sandilipay	48.1604								
30	Trincomalee	Town & Gravets	132.1348								
31	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
32	Batticaloa	Manmunai North	66.4719								
33	Jaffna	Tellipallai	61.1745								
34	Matara	Thihagoda	50.9425	30909	607	7529	0	30909	0	27.20	30.07
35	Jaffna	Maruthnkerny	135.0921								
36	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
37	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87
38	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
39	Jaffna	Point Pedro	36.9669								
40	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07
41	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
42	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
43	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99

Land Utilization within Agricultural Holdings						Sector Specific Data			DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Paddy Areas Below 2m within 5km from Coast Line (Acres)[a]	Paddy Areas Belonging to 5km from Coast Line (Acres)[a]	Total Paddy Area in DS (Acres)[a]		
1446	702	543	154	6	41	3988	17786	22150	Kuchaveli	1
995	135	309	449	10	92	784	4539	4539	Velanai	2
2320	951	382	844	1	142	317	3438	3438	Kayts	3
8795	4729	1805	1780	254	227	809	10258	13424	Poonakary	4
10518	4694	1048	3643	452	160	114	11060	11761	Chavakachcheri	5
3624	1441	57	1797	162	167	34	4978	8537	Mannar Town	6
8473	4421	1157	2248	99	548	187	7302	16082	Maritimepattu	7
5801	4747	356	459	23	217	12	7899	16846	Muttur	8
2540	1858	128	419	2	133	319	3548	3555	Chankanai	9
421	282	4	72	45	18	64	4703	6430	Musalai	10
21017	12198	2162	4872	487	1298	16	5161	15251	Ambalantota	11
1869	918	261	628	17	45	0	1684	1684	Manmunai S. and Eruvilpattu	12
3051	2348	508	190	1	3	0	2150	2482	Eachchilampattai	13
11482	5179	2757	1151	1059	1336	2	3750	7636	Hambantota	14
4892	1283	99	2933	111	466	180	2011	2011	Weligama	15
5720	1232	109	5171	300	817	51	2415	2415	Hikkaduwa	16
9131	7654	322	615	64	476	36	3970	12421	Nanaddan	17
19264	3547	3667	8251	1846	1953	19	4539	6715	Tangalle	18
6930	1666	72	6859	240	624	192	2806	5881	Bentota	19
8602	1893	98	8942	128	843	323	2308	3722	Ambalangoda	20
5698	862	154	6211	93	671	0	1335	1587	Balapitiya	21
7898	2245	363	3726	377	1187	89	3162	3465	Beruwala	22
8242	2023	84	7669	275	1024	211	1296		Akmeemana	23
5675	1567	75	4920	209	720	60	1649	1649	Habaraduwa	24
6180	2279	234	2775	235	657	32	3767	5462	Kaluthara	25
3558	1453	57	2406	130	402	232	944		Bope-Poddala	26
4652	2990	202	750	370	352	10	2008	7423	Seruvila	27
13234	2651	395	7448	1361	1379	356	3622	6827	Arachchikattuwa	28
2822	1671	325	630	6	190	101	3009	3065	Sandilipay	29
344	98	25	182	18	22	282	2376	2557	Town & Gravets	30
4641	974	57	2917	133	559	124	2881	3099	Matara	31
839	378	15	335	1	110	0	2059	2387	Manmunai North	32
1067	344	381	261		81	61	1544	1556	Tellipallai	33
7192	3835	68	2705	118	464	136	1403		Thihagoda	34
843	404	190	176	15	20	2	2407	2407	Maruthnkerny	35
4693	4376	12	262	1	42	14	6289	6520	Ninthavur	36
7578	1308	61	5042	260	907	122	1113	1136	Dickwella	37
2065	168	81	1249	140	680	0	2510	2957	Wattala	38
1257	358	412	341	6	140	3	1316	1316	Point Pedro	39
2448	446	81	1474	68	379	0	1822	1949	Panadura	40
1157	951	20	144		42	0	979	979	Kalmunai	41
6461	6170	23	187	9	72	0	1351	6813	Akkaraipattu	42
815	736	3	57	2	17	0	1146	1146	Karativu	43

Plantations

The plantation sector in Sri Lanla comprises tea, rubber, coconut and sugarcane, which together with other minor export crops such as coffee, cocoa, spices, cashew and arecanut are important for export earnings. Sri Lanka has around 709,000 ha under tea, rubber and coconut cultivation, 7320 ha under sugarcane, and 119,862 ha under other crops such as coffee, cocoa, spices, cashew, arecanut and betel leaves. About 300,000 small scale growers are involved with the cultivation of export crops. Tea and rubber plantations are concentrated in the Central and Sabragamuwa Provinces whereas coconut plantations are mainly located in the Kurunegala, Puttalam and Gampaha Districts.

Research carried out at the respective Tea, Rubber and Coconut Research Institutions, as well as selection by growers, has resulted in considerable diversification of cash crops from the originally introduced germplasm. This has served to produce high-yielding varieties that are also resistant to pests and disease and adverse climatic conditions. The main concerns to the plantations sector regarding climate change revolve around floods, droughts and landslides which are expected to increase in incidence. These disaster incidences are all linked to changes in anticipated and already felt rainfall patterns in the country.

The higher variability of rainfall due to climate change will adversely affect some agro-ecological regions, and hence affect the crops that they usually support. For example, high intensity rainfall will affect harvesting and soil erosion in tea lands and reduce the days suitable for rubber tapping. Associated severe soil erosion and loss of plant nutrients due to heavy surface run-off in agricultural lands located on steep slopes will affect production levels. Reduced annual rainfall leading to drought conditions could increase evapo-transpiration from the soil and plants, and deplete soil moisture reserves. This will be more apparent in the Dry Zone and the coastal areas. Changes in rainfall regimes could cause changes in the length of growing seasons for particular crops.

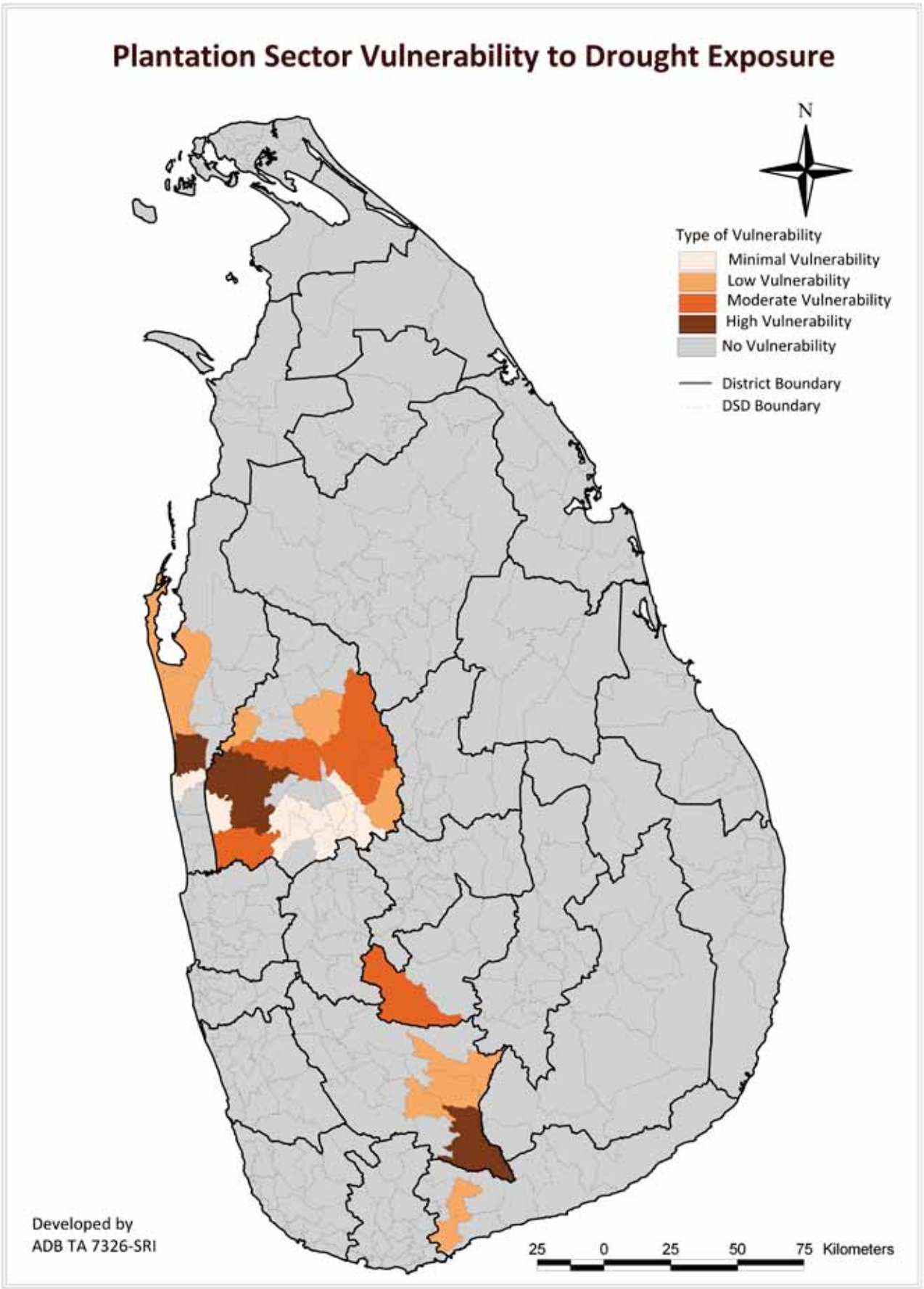
Plantation Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • area of tea, rubber, and coconut lands • estate population	A composite of data (at DSD level) on: • Percentage of females who have not completed Grade 5 (among those employed in agriculture) • Percentage of population with less than O/L education (among those employed in agriculture) • Percentage agriculture share of income (among those employed in agriculture)
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- 5 DSDs emerge as highly vulnerable to drought exposure. These DSDs have:
  - 88,069 ac of coconut cultivations, and negligible amounts of tea and rubber cultivations.
  - A total population of 354,789 of whom 77,656 are below the poverty line.
  - 40,172 jobs in agriculture.
- 7 additional DSDs are moderately vulnerable. These DSDs have:
  - 108,340 ac of coconut, 54,230 ac of tea and very minimal rubber.
  - A total of 10,522 jobs in agriculture, and an estate population of 143,272 .
- Of the 12 DSDs with high or moderate vulnerability to drought, 9 are in Kurunegala District. Plantations in these DSDs are primarily for coconut cultivation.


Plantation Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Plantation Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
2	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
3	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
4	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
5	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
6	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
7	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
8	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
9	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
10	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
11	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
12	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
13	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
14	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
15	Hambantota	Weeraketiya	115.4094	37401	324	9208	0	55459	0	32.50	21.20
16	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
17	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
18	Hambantota	Beliatta	102.5034	52283	510	12630	0	52283	0	28.30	36.26
19	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
20	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
21	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
22	Rathnapura	Godakawela	155.7512	69123	444	16962	0	57669	11454	38.20	20.31
23	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
24	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57
25	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
26	Kurunegala	Polgahawela	97.3861	58762	603	14506	0	57940	822	22.91	35.64
27	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
28	Kurunegala	Kurunegala	111.0680	88944	801	20292	28401	60369	174	14.70	44.87
29	Kurunegala	Narammala	108.3197	51244	473	13092	0	51244	0	21.40	33.36
30	Kurunegala	Weerambugedara	91.3110	30311	332	8085	0	30311	0	20.11	39.05
31	Kurunegala	Mawathagama	109.6233	56820	518	14191	0	55013	1807	24.92	33.95
32	Kurunegala	Mallawapitiya	79.9307	46575	583	11574	0	46240	335	19.50	33.19

Land Utilization within Agricultural Holdings						Sector Specific Data							DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Tea (Acres)[g]	Rubber (Acres)[g]	Coconut (Acres)[d]	Land Area <= 1/4 Acre		Educational Attainment of Agri. Operators			
									Tea (Acres)[d]	Rubber (Acres)[d]	% Less than OL[d]	% Female Passed G 5 or below[d]		
19648	3955	327	13803	306	1257			19787	0	0	65.10	7.52	Kuliyapitiya West	1
28170	7642	299	18435	175	1619			22070	0	0	68.50	8.36	Panduwasnuwara	2
41930	8551	7968	18816	3544	3051	28	3	6937	28	3	85.20	7.57	Embilipitiya	3
13234	2651	395	7448	1361	1379			13945	0	0	78.00	10.04	Arachchikattuwa	4
22151	4228	254	15339	756	1574			25330	0	0	72.80	9.46	Bingiriya	5
39693	14325	5177	15404	2423	2364			14507	0	0	81.10	9.08	Polpithigama	6
8420	294	227	6115	785	999	54230	62	557	2727	19	72.40	11.73	Ambagamuwa	7
28284	5721	334	19461	493	2275		301	30157	0	96	65.40	6.50	Pannala	8
24713	6362	721	15298	1175	1157			19466	0	0	73.20	10.37	Wariyapola	9
23214	8071	435	12640	516	1552		218	18559	0	7	71.30	8.72	Ibbagamuwa	10
15533	3322	754	9834	641	982			12488	0	0	75.10	8.98	Kobeigane	11
15663	4921	789	7694	622	1637			12606	0	0	76.70	9.51	Ganewatta	12
26197	5572	256	17773	860	1736	101	1159	18043	77	172	72.10	10.89	Rideegama	13
11838	821	344	8989	1183	501			17879	0	0	81.40	8.68	Mundalama	14
17631	3603	1226	11507	567	728			8565	0	0	80.30	12.52	Weeraketiya	15
6734	242	54	4893	965	580			8970	0	0	79.70	11.35	Puttalam	16
14658	1556	2017	8992	1232	861	1436	252	5803	1170	252	83.60	7.86	Weligepola	17
17204	3048	237	12539	433	947		33	10084	0	28	64.50	10.36	Beliatta	18
9503	11	4018	4451	265	758			8270	0	0	83.00	6.33	Kalpitiya	19
30696	8370	4699	12250	2950	2427			8668	0	0	72.40	8.97	Mahawa	20
12430	3066	1524	5133	2099	608			6008	0	0	81.40	10.48	Rasnayakapura	21
13977	1648	175	10209	1116	829	5946	2516	5194	2855	776	76.50	6.69	Godakawela	22
16543	3312	1441	8455	1569	1766	7981	51	2574	4621	1	74.40	6.26	Balangoda	23
13572	4006	73	8712	124	657			12326	0	0	65.00	6.38	Kuliyapitiya East	24
13974	2401	74	10408	173	918			13190	0	0	62.40	7.55	Udubaddawa	25
12562	3901	87	7784	208	582		278	6903	0	204	55.50	5.68	Polgahawela	26
8185	1775	493	4984	316	617			6454	0	0	69.40	9.76	Chilaw	27
11182	3746	93	6361	184	798		292	9062	0	46	50.90	5.48	Kurunegala	28
13216	3426	94	8399	216	1081		101	9715	0	33	64.60	6.51	Narammala	29
11477	3303	55	7461	143	515		33	10006	0	21	59.00	6.88	Weerambugedara	30
11687	2878	103	7484	376	846		2955	7611	0	678	62.00	6.94	Mawathagama	31
8328	2217	72	5323	157	559		730	7906	0	27	61.20	6.72	Mallawapitiya	32

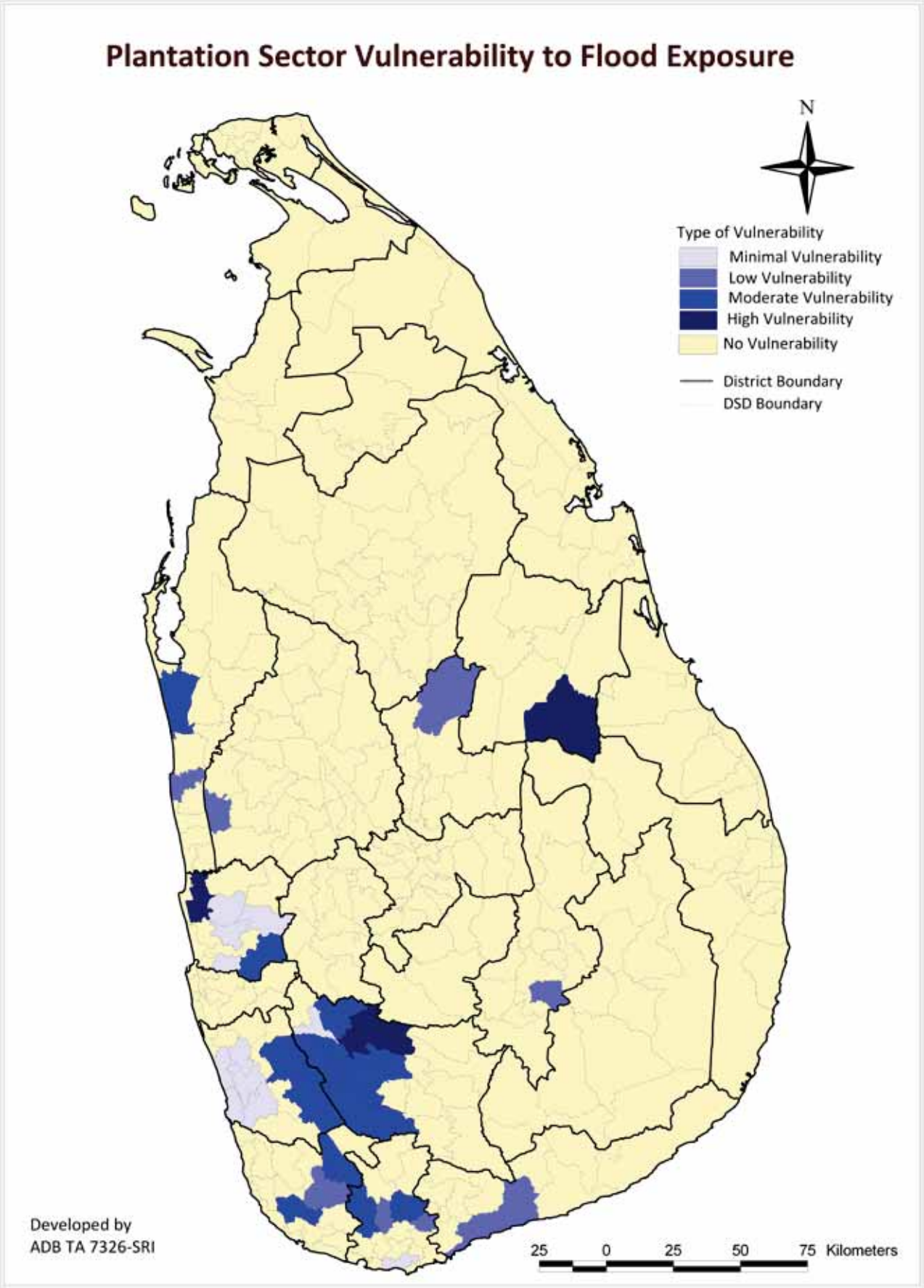
Plantation Sector Vulnerability to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • area of tea, rubber, and coconut lands • estate population	A composite of data (at DSD level) on: • Percentage of females who have not completed Grade 5 (among those employed in agriculture) • Percentage of population with less than O/L education (among those employed in agriculture) • Percentage agriculture share of income (among those employed in agriculture)
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- 3 DSDs emerge as highly vulnerable to flood exposure. These DSDs have:
  - 13,303 ac of tea cultivation, 2,640 ac of rubber, and 14,170 ac of coconut (36.7%, 6.5%, and 56.9% of total plantation area respectively).
  - A total population of 401,255 of whom 51,521 are below the poverty line.
  - 35,875 jobs in agriculture.
  - An estate population of 16,391.
- 14 additional DSDs are moderately vulnerable. These DSDs have:
  - 71,547 ac of tea, 64,084 ac of rubber, and 49,339 ac of coconut plantations.
  - A total of 117,982 jobs in agriculture, and an estate population of 54,580.


Plantation Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Plantation Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
2	Gampaha	Katana	124.9577	222683	1782	50765	73318	149365	0	7.70	41.14
3	Polonnaruwa	Dimbulagala	552.3964	63349	115	16757	0	63339	10	22.59	18.60
4	Rathnapura	Kalawana	384.7488	48669	126	11905	0	44632	4037	36.40	23.93
5	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
6	Matara	Mulatiyana	119.4139	46066	386	11169	0	45501	565	30.90	21.41
7	Galle	Thawalama	174.1470	31803	183	7710	0	30789	1014	29.50	19.99
8	Galle	Baddegama	114.4507	68634	600	16761	0	66249	2385	21.70	30.17
9	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
10	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
11	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
12	Matara	Akuressa	148.6167	49806	335	11825	0	48508	1298	21.90	24.28
13	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
14	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
15	Rathnapura	Nivithigala	157.9051	59092	374	13989	0	47942	11150	32.80	17.57
16	Rathnapura	Kuruwita	174.6734	85882	492	20460	0	80326	5556	28.90	23.57
17	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
18	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
19	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
20	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
21	Matara	Hakmana	49.6219	30201	609	7190	0	30201	0	32.00	29.15
22	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
23	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
24	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
25	Matara	Athuraliya	65.9339	30179	458	7039	0	29380	799	27.80	26.77
26	Galle	Nagoda	174.6178	52414	300	13028	0	46707	5707	28.70	23.04
27	Gampaha	Minuwangoda	133.2225	151661	1138	37683	7567	144084	10	12.50	38.36
28	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58
29	Kalutara	Millaniya	82.0638	44476	542	11035	0	43110	1366	16.90	30.71
30	Gampaha	Attanagalla	154.3057	154967	1004	36838	0	154821	146	15.40	39.55
31	Gampaha	Gampaha	90.6959	171040	1886	41357	9284	161756	0	9.90	43.27
32	Kalutara	Mathugama	134.3624	73269	545	17604	0	66781	6488	29.40	28.65
33	Kalutara	Dodangoda	112.8241	55052	488	13646	0	47970	7082	21.20	27.42
34	Gampaha	Biyagama	60.2668	161300	2676	36655	0	161300	0	11.30	41.68
35	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
36	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
37	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35

Land Utilization within Agricultural Holdings						Sector Specific Data							DSD Name	Rank
Total Extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Tea (Acres)[g]	Rubber (Acres)[g]	Coconut (Acres)[d]	Land Area <= 1/4 Acre		Educational Attainment of Agri. Operators			
									Tea (Acres)[d]	Rubber (Acres)[d]	% Less than OL[d]	% Female Passed G 5 or Below[d]		
17045	1180	161	12346	1504	1854	13303	2619	1781	9130	1587	73.00	7.74	Rathnapura	1
7608	893	97	5622	81	915		21	8002	0	21	40.80	3.27	Katana	2
39611	29574	923	5147	1737	2230			4387	0	0	83.10	8.48	Dimbulagala	3
19905	2140	134	13315	2853	1463	11728	1337	1476	9528	1034	74.90	6.34	Kalawana	4
18827	3384	712	12196	1202	1333	3554	14515	2162	2325	7163	76.40	9.52	Bulathsinhala	5
16471	2755	314	11541	774	1087	3403	1423	2147	2878	954	77.00	11.25	Mulatiyana	6
12981	1583	136	14255	1032	1239	8896	331	1251	8393	258	75.10	9.60	Thawalama	7
13506	4143	189	11495	690	1235	6231	1461	2427	4945	214	81.20	14.71	Baddegama	8
19411	2755	345	12708	2009	1594	4878	10173	1398	4590	4960	75.80	8.63	Palindanuwara	9
11403	549	21	8950	1255	628	3861	5542	876	2816	3835	77.00	7.56	Ayagama	10
22102	3984	1028	15526	421	1143		3496	11710	0	3348	56.90	3.81	Dompe	11
13970	3170	325	8464	593	1418	7007	1071	1635	6005	472	76.50	8.31	Akuressa	12
12035	1886	144	8299	619	1087	8294	4973	2228	5868	1344	75.10	5.94	Pelmadulla	13
11838	821	344	8989	1183	501			17879	0	0	81.40	8.68	Mundalama	14
10294	1025	216	7025	855	1173	5828	7518	1531	4919	1484	79.00	6.64	Nivithigala	15
12810	1798	403	8557	678	1374	5566	7772	1702	4225	2985	73.70	5.44	Kuruwita	16
7588	1206	88	5034	529	731	2301	4472	917	1850	2254	72.00	4.55	Elapatha	17
13974	2401	74	10408	173	918			13190	0	0	62.40	7.55	Ududbaddawa	18
5015	1100	726	2098	524	567	8063		120	1491	0	73.00	6.42	Ella	19
25755	9287	6624	6496	2218	1130		74	3774	0	6	81.50	5.39	Dambulla	20
9322	2360	81	6004	196	681	27	60	3315	27	59	66.80	10.10	Hakmana	21
19264	3547	3667	8251	1846	1953			5032	0	0	70.30	8.87	Tangalle	22
21017	12198	2162	4872	487	1298			3153	0	0	75.30	6.34	Ambalantota	23
8185	1775	493	4984	316	617			6454	0	0	69.40	9.76	Chilaw	24
7839	2713	104	3890	382	750	2856	1717	1220	2158	406	72.90	8.51	Athuraliya	25
14097	2915	86	14296	585	1493	9726	4329	1804	7911	339	31.10	2.37	Nagoda	26
18244	3096	133	12919	192	1904		405	13816	0	239	48.60	3.23	Minuwangoda	27
8750	1461	248	5763	483	795	1379	4328	959	993	3188	71.80	5.34	Kiriella	28
7966	2849	226	4012	226	653	34	3644	1602	25	2000	61.40	5.23	Millaniya	29
16611	3170	355	11503	362	1221	30	1451	11147	30	1030	50.40	3.70	Attanagalla	30
9476	2737	98	5656	77	908		286	6284	0	238	38.90	2.28	Gampaha	31
10764	3593	239	5051	619	1262	1201	9214	1955	975	2023	64.50	6.41	Mathugama	32
6716	2297	201	3384	207	627	105	8683	1459	83	1641	61.80	5.50	Dodangoda	33
5480	1290	87	3366	143	594		130	3607	0	130	37.80	2.36	Biyagama	34
7898	2245	363	3726	377	1187	10	2613	2991	8	1031	57.40	6.56	Beruwala	35
4641	974	57	2917	133	560		28	3016	0	29	47.10	5.38	Matara	36
6180	2279	234	2775	235	657	14	1125	2879	14	542	43.80	3.81	Kaluthara	37

Plantation Sector Vulnerability to Landslide Exposure

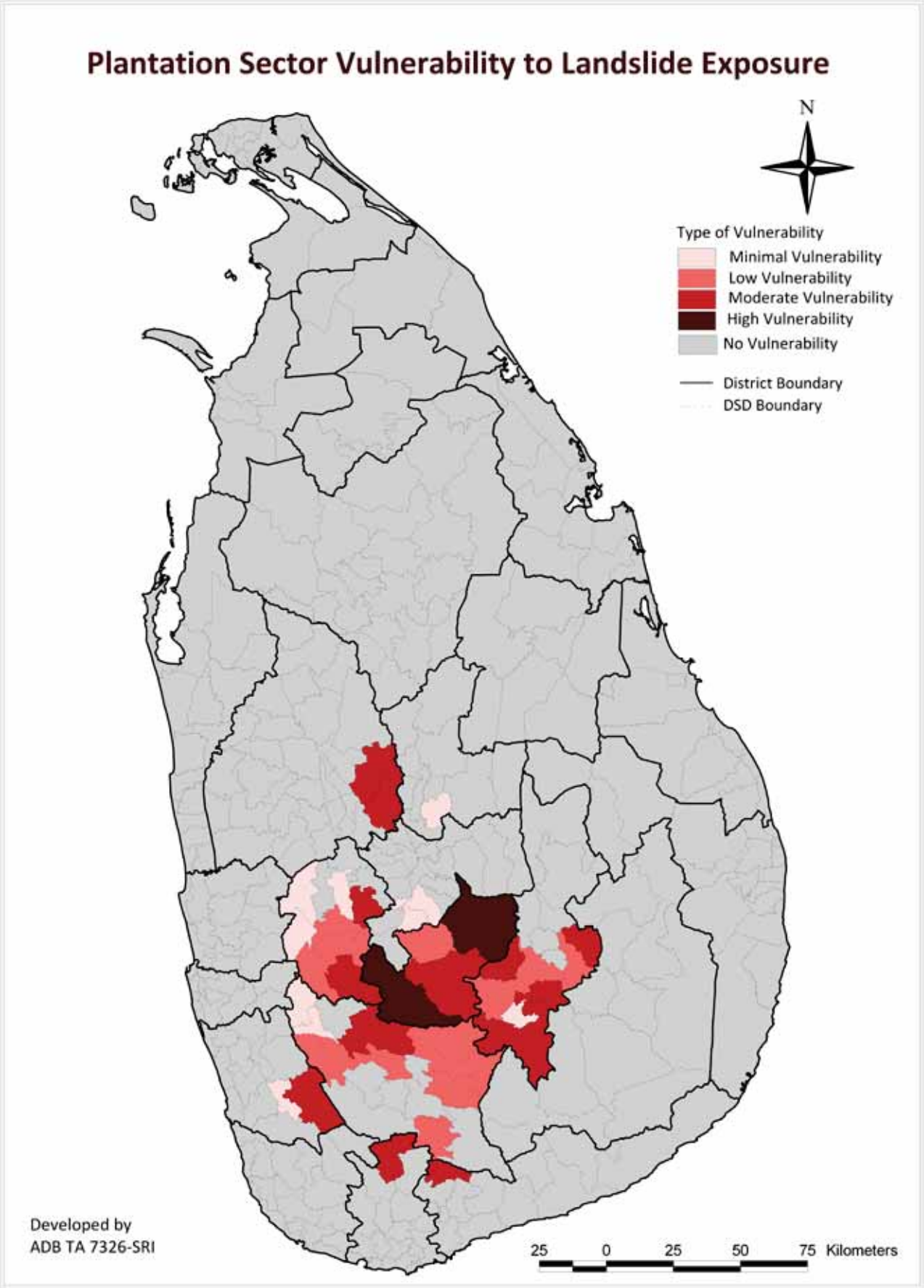
The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • area of tea, rubber, and coconut lands • estate population	A composite of data (at DSD level) on: • Percentage of females who have not completed Grade 5 (among those employed in agriculture) • Percentage of population with less than O/L education (among those employed in agriculture) • Percentage agriculture share of income (among those employed in agriculture)
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- 3 DSDs, all in the Nuwara Eliya District, emerge as highly vulnerable to landslide exposure. These DSDs have:
  - o 68,296 ac of tea plantations, and 2,383 ac of coconut plantations, while rubber lands are negligible.
  - o A total population of 397,911 of whom 102,470 are below the poverty line.
  - o 100,942 jobs in agriculture.
  - o An estate population of 195,151.

- 14 additional DSDs are moderately vulnerable in this regard. These DSDs have:
  - o 118,936 ac of tea, 51,810 ac of coconut, and 26,226 ac of rubber plantations.
  - o A total population of 993,467 and an estate population of 257,175 (25.9%).
  - o 196,292 jobs in agriculture.


Plantation Sector Vulnerability to Landslide Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Plantation Sector Vulnerability to Landslide Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Nuwara Eliya	Walapane	321.5229	106434	331	26645	0	66727	39707	26.50	15.66
2	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
3	Nuwara Eliya	Hanguranketha	228.6220	87760	384	22524	0	74355	13405	34.60	19.18
4	Rathnapura	Rathnapura	326.7894	115223	353	26549	45623	53219	16381	21.90	30.01
5	Badulla	Bandarawela	70.0596	60269	860	14379	7296	44049	8924	21.61	32.66
6	Nuwara Eliya	Nuwara Eliya	483.5716	208190	431	49385	28869	36922	142399	21.90	18.93
7	Kegalle	Deraniyagala	222.0806	44735	201	11336	0	34377	10358	33.60	19.57
8	Matara	Kotapola	179.3289	64012	357	15073	0	51875	12137	22.60	15.42
9	Badulla	Haldummulla	414.9996	38223	92	9855	0	23207	15016	31.65	18.09
10	Badulla	Lunugala	141.8095	33079	233	8260	0	14585	18494	38.82	13.78
11	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
12	Kegalle	Aranayaka	124.4190	66198	532	16850	0	64894	1304	36.10	29.31
13	Hambantota	Katuwana	103.7065	41392	399	10025	0	62344	0	34.30	17.11
14	Kalutara	Palindanuwara	283.2330	45911	162	11597	0	40298	5613	30.70	22.88
15	Badulla	Ella	109.3657	42894	392	10775	0	29156	13738	28.04	21.90
16	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
17	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
18	Rathnapura	Weligepola	203.5279	29099	143	7690	0	28720	379	39.20	19.60
19	Nuwara Eliya	Kothmale	223.7228	97509	436	23841	0	58181	39328	22.30	19.01
20	Rathnapura	Elapatha	86.8547	36322	418	8828	0	34219	2103	40.10	22.39
21	Rathnapura	Imbulpe	255.2644	55546	218	14086	660	46388	8498	32.00	24.58
22	Badulla	Welimada	193.9032	94399	487	22838	0	84180	10219	29.19	28.14
23	Rathnapura	Kolonna	183.0319	43693	239	10661	0	38930	4763	37.70	14.65
24	Rathnapura	Pelmadulla	144.8430	84966	587	19906	560	73480	10926	30.20	26.35
25	Rathnapura	Balangoda	274.1594	77303	282	18720	11402	58032	7869	27.30	27.22
26	Rathnapura	Ayagama	157.6893	28637	182	7357	0	25160	3477	33.70	21.37
27	Badulla	Passara	135.9205	49190	362	12245	0	29457	19733	31.88	19.27
28	Badulla	Hali Ela	170.1437	87476	514	21835	0	58715	28761	34.58	24.29
29	Kegalle	Bulathkohupitiya	127.2471	45573	358	11729	0	37396	8177	32.50	22.74
30	Kegalle	Dehiovita	193.2396	73991	383	18460	0	62883	11108	29.30	24.21
31	Kegalle	Yatiyanthota	178.0749	57239	321	14197	0	45071	12168	30.10	23.81
32	Kegalle	Warakapola	195.5200	106038	542	26503	0	103087	2951	26.00	30.93
33	Kegalle	Ruwanwella	138.6165	58892	425	14461	0	54679	4213	28.50	28.11
34	Kegalle	Kegalle	109.0590	87637	804	21327	17139	68733	1765	26.70	37.80
35	Kandy	Doluwa	100.1685	45270	452	11651	0	37392	7878	26.50	21.04
36	Matale	Rattota	105.2255	49382	469	13068	0	40015	9367	23.40	25.32
37	Kalutara	Agalawatta	89.7814	33962	378	8423	0	32768	1194	26.40	33.03
38	Badulla	Haputhale	70.3267	50735	721	11565	3235	29372	18128	24.42	29.37
39	Rathnapura	Eheliyagoda	141.9292	63870	450	15566	0	61593	2277	26.90	26.60
40	Kandy	Udapalatha	90.6003	86145	951	19936	24116	48242	13787	21.40	29.35
41	Rathnapura	Kiriella	79.5653	30881	388	7666	0	29748	1133	25.60	26.58

Land Utilization within Agricultural Holdings						Sector Specific Data							DSD Name	Rank
Total extent of Holdings (Acres)[d]	Aswed-dumized Paddy (Acres)[d]	Temp. Crops other than Aswed-dumized Paddy (Acres)[d]	Perm. Crops (Acres)[d]	Forest Land (Acres)[d]	Other Land (Acres)[d]	Tea (Acres)[g]	Rubber (Acres)[g]	Coconut (Acres)[d]	Land Area <= 1/4 Acre		Educational Attainment of Agri. Operators			
									Tea (Acres)[d]	Rubber (Acres)[d]	% Less than OL[d]	% Female Passed G 5 or below[d]		
17933	6344	3667	4577	1800	1545	9202		621	633	0	78.20	7.75	Walapane	1
8420	294	227	6115	785	999	54230	62	557	2727	19	72.40	11.73	Ambagamuwa	2
18229	6099	5322	4292	1063	1453	4864		1205	807	0	76.60	6.61	Hanguranketha	3
17045	1180	161	12346	1504	1854	13303	2619	1781	9130	1587	73.00	7.74	Rathnapura	4
4190	1198	732	1467	347	446	5259		28	1285	0	57.50	6.31	Bandarawela	5
3590	22	2919	260	58	331	44013		0	153	0	52.10	4.57	Nuwara Eliya	6
12159	198	135	8735	1172	1919	6047	7370	1686	4076	2261	75.80	9.10	Deraniyagala	7
13240	1826	164	9612	312	1326	15984	68	1482	8849	14	76.70	8.20	Kotapola	8
11094	1834	808	5175	2144	1133	5211	597	543	370	109	75.00	7.93	Haldummulla	9
4622	881	195	2210	609	727	9148	249	251	508	45	76.10	8.93	Lunugala	10
26197	5572	256	17773	860	1736	101	1159	18043	77	172	72.10	10.89	Rideegama	11
13996	2506	247	9962	310	971	1432	3712	2469	892	2799	69.30	7.26	Aranayaka	12
15519	574	489	12272	938	1246	184	61	5241	184	61	86.90	13.80	Katuwana	13
19411	2755	345	12708	2009	1594	4878	10173	1398	4590	4960	75.80	8.63	Palindanuwara	14
5015	1100	726	2098	524	567	8063		120	1491	0	73.00	6.42	Ella	15
14085	3627	6531	2852	322	753	5313		209	1569	0	76.10	7.02	Uva Paranagama	16
23214	8071	435	12640	516	1552		218	18559	0	7	71.30	8.72	Ibbagamuwa	17
14658	1556	2017	8992	1232	861	1436	252	5803	1170	252	83.60	7.86	Weligepola	18
12102	1134	1238	7903	894	933	11899	19	194	5674	57	68.80	8.53	Kothmale	19
7588	1206	88	5034	529	731	2301	4472	917	1850	2254	72.00	4.55	Elapatha	20
13328	2420	485	7618	1663	1142	10244	4	1159	5008	4	75.60	5.91	Imbulpe	21
14422	3562	6708	3070	205	877	7690		33	2596	0	73.90	6.02	Welimada	22
17284	1460	614	11292	2560	1358	4667	44	2184	2753	10	82.80	7.19	Kolonna	23
12035	1886	144	8299	619	1087	8294	4973	2228	5868	1344	75.10	5.94	Pelmadulla	24
16543	3312	1441	8455	1569	1766	7981	51	2574	4621	1	74.40	6.26	Balangoda	25
11403	549	21	8950	1255	628	3861	5542	876	2816	3835	77.00	7.56	Ayagama	26
7264	1208	407	3688	889	1072	7492	1	306	1513	1	67.20	8.21	Passara	27
10387	2542	1222	4514	814	1295	13081		275	2702	0	64.80	6.85	Hali Ela	28
8778	542	260	6730	497	749	3895	5714	1542	1954	2284	67.50	7.22	Bulathkohupitiya	29
12660	572	695	9451	947	995	2790	17388	2333	1561	4929	66.60	8.63	Dehiovita	30
9467	339	434	7184	818	692	3703	8613	1451	2009	1710	73.60	9.21	Yatiyanthota	31
21469	2723	1273	15219	608	1646	72	12439	6779	69	6825	62.10	5.21	Warakapola	32
13863	1074	398	10532	725	1134	201	13711	3170	156	5524	67.20	7.88	Ruwanwella	33
12577	2124	177	8828	321	1127	449	4549	3259	245	2894	59.40	6.81	Kegalle	34
7387	982	240	4574	907	684	6078		443	2451	0	74.20	10.15	Doluwa	35
7434	1449	71	5150	364	400	5115	1498	1310	332	94	68.90	8.35	Rattota	36
9712	2354	223	5536	716	883	934	3882	1089	929	2693	66.40	7.83	Agalawatta	37
2728	596	453	1071	198	410	6222		11	948	0	56.10	5.95	Haputhale	38
11761	1754	798	7870	639	700	1482	9480	1580	1170	4644	70.70	7.02	Eheliyagoda	39
6424	935	218	4332	347	592	6412	9	491	2156	9	65.00	7.98	Udapalatha	40
8750	1461	248	5763	483	795	1379	4328	959	993	3188	71.80	5.34	Kiriella	41

Fisheries

The fishery sector in Sri Lanka consists mainly of coastal fisheries, offshore fisheries, inland capture fisheries, and aquaculture and shrimp farming. This sector earns valuable foreign exchange through the export of marine and aquaculture products, and provides direct employment to 208,731 island wide, while sustaining over 2.5 million people. Fishery constitutes the major economic activity in the coastal region which is home to 25% of the island's population. Fish also provides about 70% of animal protein consumed in the country. Due to its importance as a livelihood of a considerable segment of Sri Lanka's population, and importance as a source of protein for the people of this country, the fishery sector has received much attention in the national development agenda. Since fisheries is heavily dependent on conducive environmental conditions for sustainability and productivity, it is critically important that development of the fishery sector should take into account the ramifications of climate change, including sea level rise, and take steps to strategically adopt appropriate adaptation measures to ensure the continued sustainability of the fishery industry.

There are about 45 major estuaries and 89 lagoons along the island's coastline that are also important components of the coastal fishery. While much of the current fish production is from the coastal sub-sector, the fishery potential in the offshore/deep sea and international waters, and inland fisheries and aquaculture, is increasingly recognized as important for enhancing the total fishery production in the future. Sri Lanka's inland surface waters, including freshwater bodies, perennial reservoirs, seasonal tanks and villus, which cover about 520,000 ha, offer considerable potential for the inland freshwater fishery. Opportunities also exist for brackish water aquaculture in a total extent of around 6,000 ha.

The potential risks of sea level rise on fisheries includes the loss or change of coastal habitats and species distribution. For example, landward migration of coastal wetlands would result in the loss of freshwater and brackish water habitats (such as mangroves and coral reefs) important for the coastal and marine fishery. Loss of beach areas will affect coastal communities such as those dependent on beach seine fishery due to beach accessibility issues. Sea level rise should be taken into account in the construction of new fishery harbours - several anchorages and 14 more fishery harbours are to be constructed according to national development plans, which may be adversely affected by storm surges, flooding and inundation due to sea level rise.

The possible impacts of changes in rainfall regimes and prolonged drought on fisheries can have varied implications affecting mainly inland fisheries. It is expected that in the Dry and Arid Zones, this would lead to increased evaporation which would impact the inland fishery including lowered yields in seasonal tanks. On the other hand, flooding will affect inland aquaculture and capture fishery due to pollution, sedimentation and any adverse changes in water quality parameters of surface water bodies. These would all have serious implications on rural nutrition and incomes for dependent communities.

Increase in temperatures will also have significant implications on coastal, marine and inland fisheries as well as on aquaculture. Coastal habitats, such as coral reefs, seagrass beds and mangroves, which support fisheries will be affected and in turn will affect the distribution and composition of marine and coastal species affecting fish stocks. Inland wetlands important for the food fishery may be adversely affected by temperature anomalies with resultant changes in water quality that for example could cause fish kills. More details on the impacts and already existing anthropogenic factors that can exacerbate the problems associated with climate change can be found in the *SVP on Agriculture and Fisheries.*

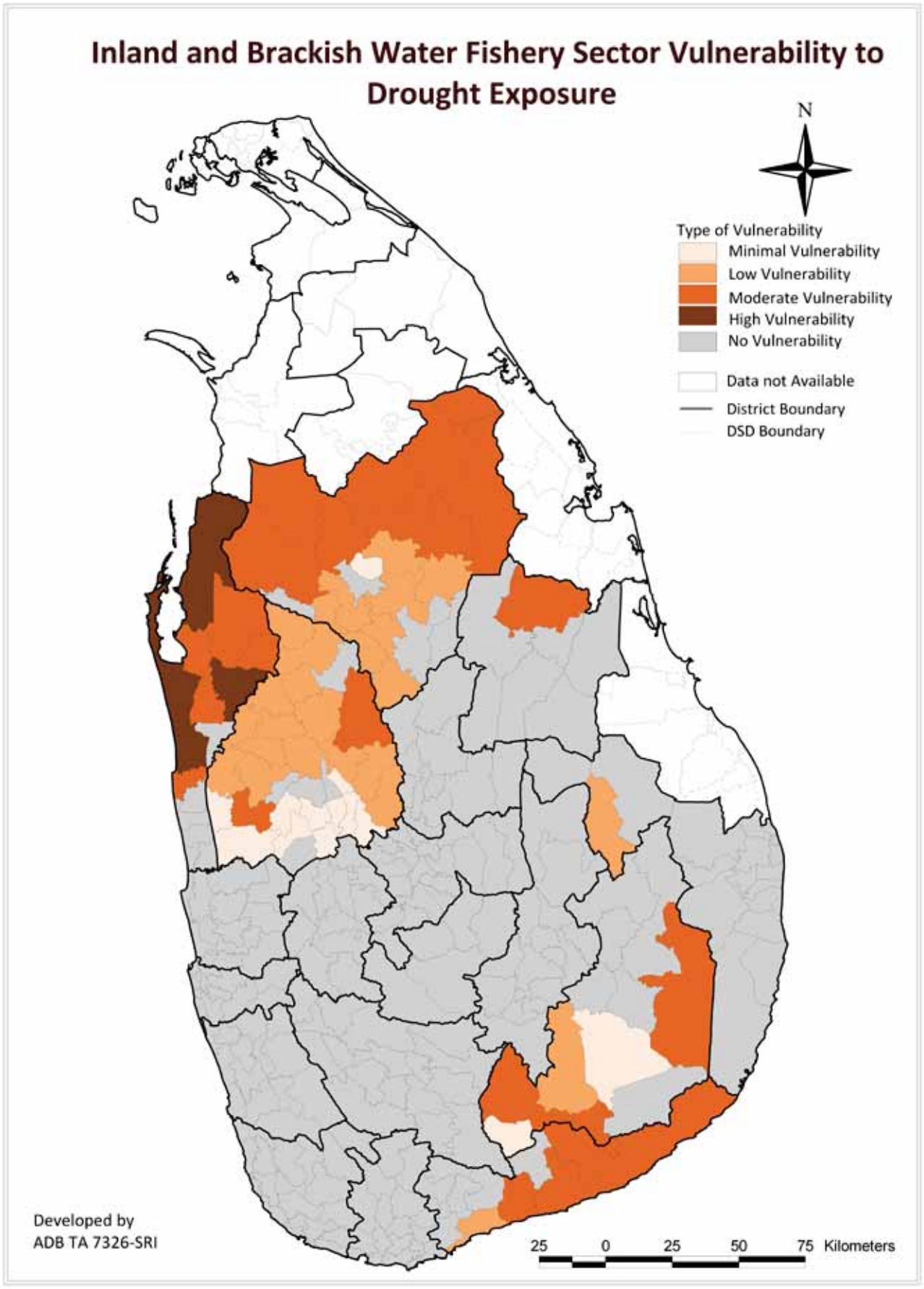
Inland and Brackish Water Fishery Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of employment in fisheries within GN divisions with no coastal frontage • Average inland/brackish water fisheries yield over the last four years • area of water bodies (tanks, lakes, lagoons, mangroves)	A composite of data (at DSD level) on: • percentage of population above the poverty line • percentage of population who have completed secondary education
Raw data sources: Population & Housing Census, 2001; Ministry of Fisheries and Aquatic Resources	

Some of the key findings include:

- Vulnerability to drought exposure in the inland and brackish water fishery sector is widespread, particularly in the Dry and Intermediate zones.
- All 5 DSDs that fall within the highly vulnerable category in this regard are in the Puttalam District. These 5 DSDs have:
  - 104,162 ac of lagoons and 7,101 ac of tanks.
  - 9,453 people employed in the inland fishery.
- 23 additional DSDs fall within the moderately vulnerable category. These DSDs have:
  - 18,142 ac of lagoons and 106,102 ac of tanks.
  - 6,597 people employed in inland fisheries.
- With 5 DSDs as highly vulnerable, and another 5 DSDs within the moderately vulnerable category, Puttalam is clearly the district most vulnerable to drought exposure with regard to the inland/brackish water fishery.


Inland and Brackish Water Fishery Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Inland and Brackish Water Fishery Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Puttalam	Vanathavilluwa	736.5317	16460	22	4024	0	16410	50	40.31	12.25
3	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
4	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
5	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
6	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
7	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
8	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
9	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
10	Puttalam	Mahakumbuk kadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
11	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
12	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
13	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
14	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
15	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
16	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.14	20.32
17	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
18	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
19	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
20	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85
21	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
22	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
23	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
24	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
25	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
26	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
27	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
28	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
29	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
30	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
31	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
32	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
33	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
34	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
35	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
36	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
37	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
38	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
39	Anuradhapura	Ipalogama	142.4270	32933	231	8730	0	31992	941	17.41	25.86
40	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
41	Anuradhapura	Thambuttegama	111.4855	36524	328	9448	0	36524	0	19.05	22.52
42	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03
43	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
44	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
45	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
46	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
47	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
48	Ampara	Padiyathalawa	386.8510	15971	41	3642	0	15971	0		11.66
49	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
50	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
51	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42

Sector Specific Data					DSD Name	Rank
# Employed in Inland Fishing[a]	Inland Fishing as % of Total Jobs[a]	Lagoons (Acres)[a]	Tanks (Acres)[a]	Lakes and Reservoirs (Acres)[a]		
5623	24.40	59800.1	23.4	340.8	Kalpitiya	1
693	13.27	43076.8	443.4	0.0	Vanathavilluwa	2
1436	11.51	48.5	2281.8	61.1	Arachchikattuwa	3
1681	10.57	1237.1	553.6	7447.4	Mundalama	4
20	0.17	0.0	3798.8	0.0	Anamaduwa	5
236	3.52	0.0	7415.9	0.0	Padaviya	6
111	1.35	0.0	3404.1	0.0	Karuwalagaswewa	7
1159	6.36	14914.6	560.4	0.0	Puttalam	8
362	1.77	1876.5	2815.5	0.0	Ambalantota	9
0	0.00	0.0	2941.7	0.0	Mahakumbuk kadawala	10
42	0.25	0.0	3940.8	34.6	Siyambalanduwa	11
0	0.00	0.0	6527.9	0.0	Rambewa	12
60	0.57	0.0	9506.9	0.0	Horowpothana	13
219	0.88	0.0	7293.5	0.0	Medirigiriya	14
2670	13.83	0.0	1523.7	1795.9	Chilaw	15
51	0.25	0.0	7349.5	0.0	Nuwaragam Palatha Central	16
13	0.08	0.0	9013.2	0.0	Medawachchiya	17
35	0.69	0.0	1349.9	660.0	Nawagattegama	18
23	0.09	0.0	575.6	0.0	Kuliyapitiya West	19
79	1.05	0.0	4035.2	0.0	Maha Vilachchiya	20
41	0.15	0.0	3204.3	958.5	Polpithigama	21
52	0.58	0.0	4405.1	5411.9	Thanamalwila	22
619	3.20	474.2	3758.5	57.8	Tissamaharama	23
23	0.30	0.0	5645.4	0.0	Kebithigollewa	24
0	0.00	0.0	8923.7	0.0	Kahatagasdigiliya	25
596	3.96	731.6	2569.5	0.0	Hambantota	26
0	0.00	0.0	7762.0	0.0	Nochchiyagama	27
206	2.48	144.9	1580.1	0.0	Lunugamvehera	28
70	0.35	0.0	4712.6	0.0	Thalawa	29
63	0.52	0.0	3581.2	0.0	Palagala	30
64	0.37	0.0	7553.6	0.0	Galenbidunuwawe	31
0	0.00	0.0	738.9	0.0	Ganewatta	32
152	0.93	0.0	6161.6	1405.0	Galgamuwa	33
0	0.00	0.0	2951.9	0.0	Panduwasnuwara	34
20	0.16	0.0	1869.1	0.0	Galnewa	35
49	0.50	0.0	6188.8	0.0	Thirappane	36
7	0.06	0.0	1484.1	0.0	Kobeigane	37
72	0.25	0.0	1820.3	0.0	Ibbagamuwa	38
102	0.85	0.0	2344.9	0.0	Ipalogama	39
45	0.23	0.0	1353.3	0.0	Wellawaya	40
150	0.97	0.0	1406.8	0.0	Thambuttegama	41
84	0.93	0.0	6914.8	0.0	Mihintale	42
91	0.81	0.0	4217.2	0.0	Giribawa	43
28	0.15	0.0	1453.0	0.0	Bingiriya	44
13	0.06	0.0	3776.4	0.0	Mahawa	45
969	4.92	1017.2	707.5	0.0	Tangalle	46
60	0.45	0.0	2839.4	0.0	Nikaweratiya	47
77	1.31	0.0	136.9	3516.5	Padiyathalawa	48
13	0.05	0.0	119.6	0.0	Rideegama	49
8	0.13	0.0	1536.2	0.0	Rasnayakapura	50
6	0.03	0.0	2054.2	0.0	Wariyapola	51

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
52	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
53	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
54	Moneragala	Buttala	735.5660	47324	64	11843	0	47324	0	21.20	22.01
55	Moneragala	Sewanagala	191.9569	36820	192	9221	0	35739	1081	19.30	20.35
56	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
57	Kurunegala	Polgahawela	97.3861	58762	603	14506	0	57940	822	22.91	35.64
58	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57
59	Kurunegala	Narammala	108.3197	51244	473	13092	0	51244	0	21.40	33.36
60	Kurunegala	Mawathagama	109.6233	56820	518	14191	0	55013	1807	24.92	33.95
61	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
62	Kurunegala	Mallawapitiya	79.9307	46575	583	11574	0	46240	335	19.50	33.19
63	Anuradhapura	Nuwaragam Palatha East	90.6614	65671	724	14504	40030	25641	0	11.97	44.47
64	Kurunegala	Kurunegala	111.0680	88944	801	20292	28401	60369	174	14.70	44.87
65	Kurunegala	Weerambugedara	91.3110	30311	332	8085	0	30311	0	20.11	39.05

Sector Specific Data					DSD Name	Rank
# Employed in Inland Fishing [a]	Inland Fishing as % of Total Jobs [a]	Lagoons (Acres) [a]	Tanks (Acres) [a]	Lakes and Reservoirs (Acres) [a]		
25	0.32	0.0	2882.1	1137.6	Kotawehera	52
45	0.59	0.0	2193.9	1715.0	Ambanpola	53
3	0.02	0.0	455.8	0.0	Buttala	54
51	0.38	0.0	2112.7	0.0	Sewanagala	55
0	0.00	0.0	224.3	0.0	Pannala	56
7	0.04	0.0	35.8	0.0	Polgahawela	57
3	0.02	0.0	922.9	0.0	Kuliyapitiya East	58
31	0.17	0.0	65.1	0.0	Narammala	59
0	0.00	0.0	86.0	0.0	Mawathagama	60
0	0.00	0.0	93.2	0.0	Ududdawa	61
0	0.00	0.0	224.2	0.0	Mallawapitiya	62
102	0.41	0.0	3592.1	0.0	Nuwaragam Palatha East	63
18	0.06	0.0	289.9	0.0	Kurunegala	64
0	0.00	0.0	89.8	0.0	Weerambugedara	65

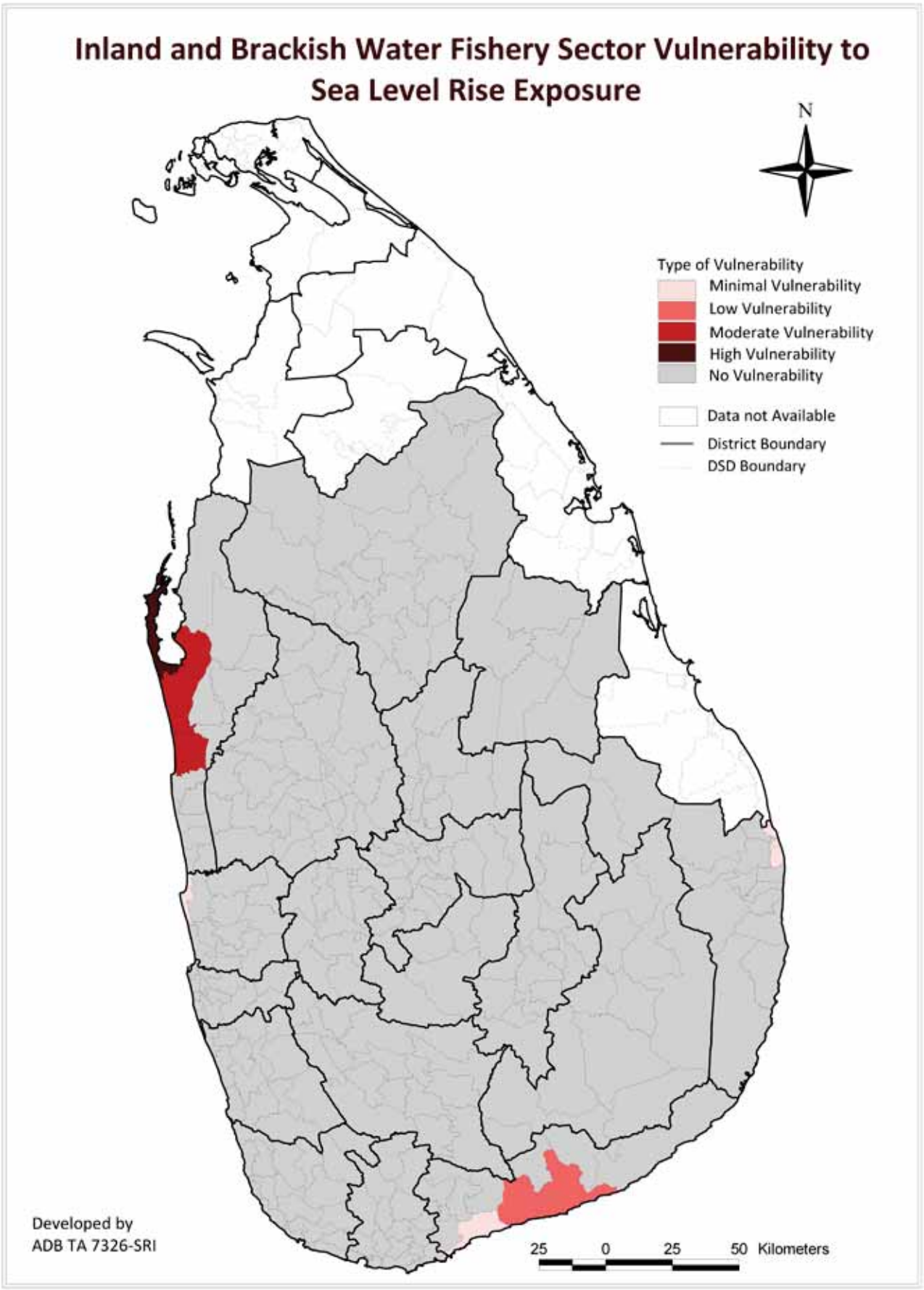
Inland and Brackish Water Fishery Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • Percentage of employment in fisheries within GN divisions with no coastal frontage • Average inland/brackish water fisheries yield over the last four years • area of water bodies (tanks, lakes, lagoons, mangroves)	A composite of data (at DSD level) on: • percentage of population above the poverty line • percentage of population who have completed secondary education
Raw data sources: Population & Housing Census, 2001; Ministry of Fisheries and Aquatic Resources	

Some of the key findings include:

- Vulnerability to sea level rise exposure of the inland and brackish water fishery sector is highest primarily in the Puttalam District, with a pocket of low vulnerably in the Hambantota District.
- All 4 DSDs that are either highly or moderately vulnerable in this regard are in the Puttalam District. These 4 DSDs have:
    - 76,000 ac of lagoons.
    - 9,899 people employed in the inland/brackish water fishery sector.


Inland and Brackish Water Fishery Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 Kilometers

Inland and Brackish Water Fishery Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability Moderate Vulnerability Low Vulnerability Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
3	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
4	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
5	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
6	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
7	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
8	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
9	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
10	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
11	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44

Sector Specific Data					DSD Name	Rank
# Employed in Inland Fishing[a]	Inland Fishing as % of Total Jobs[a]	Lagoons (Acres)[a]	Tanks (Acres)[a]	Lakes and Reservoirs (Acres)[a]		
5623	24.40	59800.1	23.4	340.8	Kalpitiya	1
1681	10.57	1237.1	553.6	7447.4	Mundalama	2
1159	6.36	14914.6	560.4	0.0	Puttalam	3
1436	11.51	48.5	2281.8	61.1	Arachchikattuwa	4
596	3.96	731.6	2569.5	0.0	Hambantota	5
362	1.77	1876.5	2815.5	0.0	Ambalantota	6
477	11.13	110.8	4.0	0.0	Karativu	7
969	4.92	1017.2	707.5	0.0	Tangalle	8
122	2.15	95.2	0.0	0.0	Ninthavur	9
3252	6.95	4235.2	0.0	0.0	Negombo	10
303	1.94	396.8	975.9	0.0	Kalmunai	11

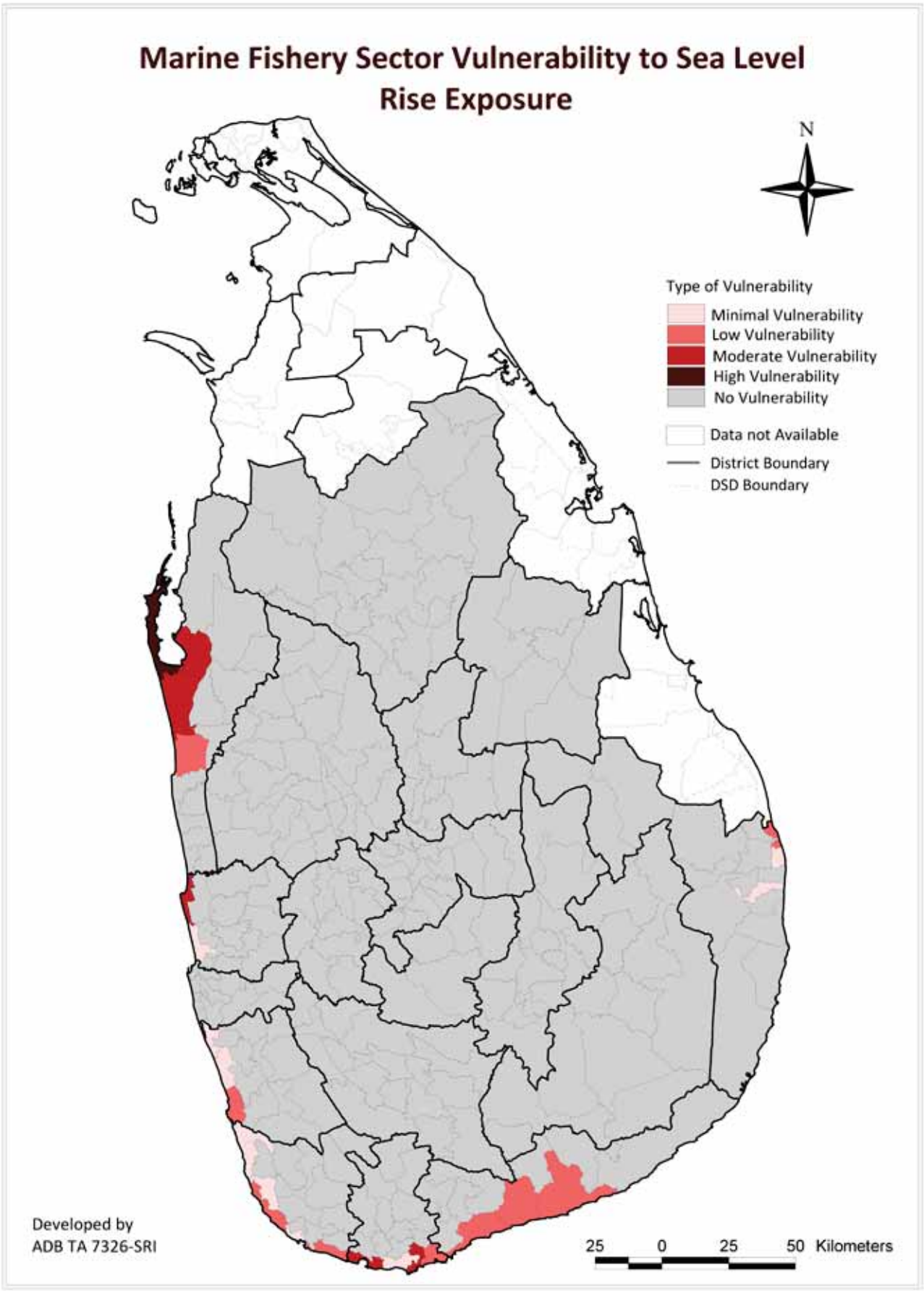
Marine Fishery Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • number of fisheries landing sites • percentage of livelihoods dependent on fisheries • average fishing yield over the last four years	A composite of data (at DSD level) on: • percentage of population above the poverty line • percentage of population who have completed secondary education • percentage employed in sectors other than fisheries
Raw data sources: Population & Housing Census, 2001; Department of Coast Conservation; Ministry of Fisheries and Aquatic Resources	

Some of the key findings include:

- Kalpitiya (Puttalam District) emerges as the DSD that is highly vulnerable to sea level rise exposure in this regard. Kalpitiya has:
  - 5,938 jobs in the fisheries sector, which is more than 25% of its total employment.
  - 43 fisheries landing sites.
- An additional 5 DSDs are moderately vulnerable. These DSDs have:
  - 10,408 jobs in fisheries.
  - 115 fisheries landing sites.


Marine Fishery Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
Data not Available
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 Kilometers

Marine Fishery Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
3	Gampaha	Negombo	46.1424	144274	3127	31915	121413	22861	0	7.10	30.04
4	Matara	Devinuwara	37.6183	44199	1175	9988	0	44199	0	20.90	26.80
5	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
6	Matara	Weligama	43.1469	66459	1540	14825	21698	44761	0	21.50	30.48
7	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
8	Hambantota	Tangalle	152.5016	62800	412	14981	10437	52363	0	27.10	30.04
9	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
10	Matara	Dickwella	50.9687	51314	1007	11592	0	51314	0	22.70	31.87
11	Galle	Habaraduwa	49.5183	59041	1192	13567	0	59041	0	28.70	29.53
12	Galle	Hikkaduwa	66.0971	98589	1492	22820	0	98539	50	24.90	33.61
13	Ampara	Karativu	8.9392	16365	1831	3641	0	16365	0		28.99
14	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20
15	Ampara	Kalmunai	19.6568	70465	3585	15821	70465	0	0		28.44
16	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
17	Galle	Balapitiya	54.5727	65346	1197	15054	0	65346	0	22.00	27.89
18	Galle	Galle Four Gravets	23.7565	103246	4346	19425	90270	12976	0	19.30	39.96
19	Ampara	Ninthavur	36.3016	24625	678	6235	0	24625	0		22.78
20	Galle	Ambalangoda	70.2467	71047	1011	17122	39302	51396	0	20.30	32.73
21	Matara	Matara	56.1514	108238	1928	23705	42663	65575	0	16.90	42.45
22	Gampaha	Wattala	57.6911	160127	2776	36368	28740	131387	0	6.10	40.21
23	Kalutara	Kaluthara	77.6779	141829	1826	31857	37451	104378	0	12.50	38.35
24	Galle	Bentota	72.3358	46442	642	11015	0	46442	0	22.30	31.14
25	Ampara	Akkaraipattu	60.4089	34939	578	7649	0	34939	0		26.00
26	Kalutara	Panadura	45.0310	163492	3631	37245	33514	129978	0	7.40	40.07

Sector Specific Data					DSD Name	Rank
No. of Landing Sites[h]	Total Employed Pop[b]	Fishery Sector Jobs[b]	# Emplyed in Marine Fishing[a]	% of Marine Fishing from Total Jobs[a]		
43	23049	5995	5938	25.76	Kalpitiya	1
9	15911	2809	1969	12.38	Mundalama	2
84	46825	6752	4295	9.17	Negombo	3
7	11666	2124	1702	14.59	Devinuwara	4
6	18228	1159	1057	5.80	Puttalam	5
9	17734	1987	1385	7.81	Weligama	6
5	12471	1436	711	5.70	Arachchikattuwa	7
25	19678	2365	1823	9.26	Tangalle	8
11	15041	906	727	4.83	Hambantota	9
9	13250	1249	1033	7.80	Dickwella	10
33	18237	521	326	1.79	Habaraduwa	11
25	26796	1554	1091	4.07	Hikkaduwa	12
19	4287	519	379	8.84	Karativu	13
15	41163	1476	972	2.36	Beruwala	14
31	15649	1072	781	4.99	Kalmunai	15
5	20478	449	295	1.44	Ambalantota	16
16	17683	646	448	2.53	Balapitiya	17
7	29596	416	326	1.10	Galle Four Gravets	18
6	5674	340	292	5.15	Ninthavur	19
4	20528	419	280	1.36	Ambalangoda	20
4	31072	395	275	0.89	Matara	21
21	57168	1013	676	1.18	Wattala	22
10	44308	698	591	1.33	Kaluthara	23
7	13339	78	54	0.40	Bentota	24
4	9026	117	83	0.92	Akkaraipattu	25
12	55126	368	238	0.43	Panadura	26

Livestock

Livestock is an important component of the agricultural sector in Sri Lanka. At present there are about 1,136,860 neat cattle, 371,790 buffalo, 377,460 goats, 8,000 sheep, 81,310 pigs, 13,615,290 chickens and 15,244 ducks country wide. Most of the livestock comprise imported high yielding breeds promoted to address the increase in livestock production. Sri Lanka also has several local breeds that are well adapted to the local environment and harsh conditions, but are relatively low yielding. The livestock sector is potentially at risk from the impacts of climate change due to its vulnerability to floods, droughts and sea level rise due to the geographic distribution of the different types of livestock in the country.

Increase in the intensity and frequency of water related disasters such as floods and landslides will adversely affect livestock production in areas that are naturally prone to these disasters. This will adversely affect the dependent farming communities and also affect the nutritional security of the country. Sea level rise and storm surges could affect livestock situated along the coastal belt of the country due to flooding and face issues of water accessibility due to saline intrusion. Increase in temperature and prolonged drought situations will give rise to increased heat stress for livestock thereby affecting their production levels. This will further increase water requirements during drought conditions as well.

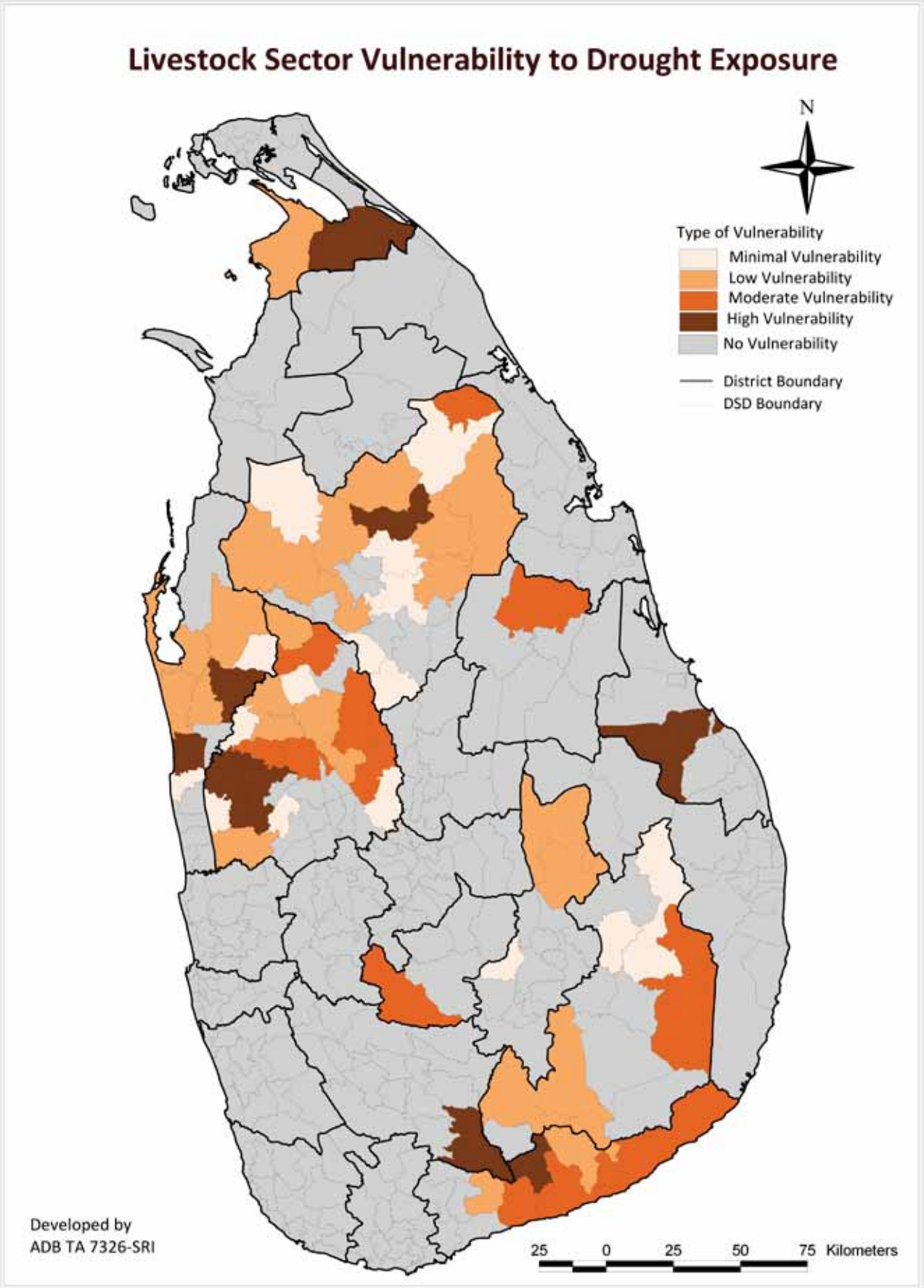
Livestock Sector Vulnerability to Drought Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • number of landholdings with cattle/buffalo • number of landholdings with goats and swine • number of poultry (number of birds)	A composite of data (at DSD level) on: • percentage of population employed in agriculture who have completed secondary education • number of landholdings ≤ ¼ acre • % of females with education above Grade 5 (from among the population employed in agriculture) • Percentage of households with agriculture as primary source of income.
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- 10 DSDs emerge as highly vulnerable to drought exposure. These DSDs have:
  - 127,350 heads of cattle and buffalo, and 47,085 heads of goats and swine.
  - Over 2.5 million heads of poultry.
- 12 additional DSDs emerge as moderately vulnerable. These DSDs have:
  - 146,811 heads of cattle and buffalo, and 70,878 heads of goats and swine.
  - Over a million heads of poultry.


Livestock Sector Vulnerability to Drought Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Livestock Sector Vulnerability to Drought Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households [b]	Urban Population [b]	Rural Population [b]	Estate Population [b]	% in Poverty [c]	% Completed Secondary Education[a]
1	Kurunegala	Panduwasnuwara	216.0387	69888	323	18130	0	69888	0	18.90	28.69
2	Puttalam	Anamaduwa	259.0095	33302	129	9039	0	33302	0	16.77	22.53
3	Batticaloa	Eravur Pattu									
4	Kurunegala	Kuliyapitiya West	163.9366	71483	436	18666	6290	65102	91	16.62	32.77
5	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
6	Kurunegala	Bingiriya	195.2943	55763	286	15223	0	55613	150	16.80	24.53
7	Rathnapura	Embilipitiya	383.4799	119563	312	29126	0	119490	73	31.60	21.16
8	Kilinochchi	Karachchi									
9	Anuradhapura	Rambewa	303.6555	31604	104	8230	0	31592	12	20.57	19.54
10	Hambantota	Suriyawewa	189.7447	35529	187	9031	0	35529	0	34.80	17.37
11	Kurunegala	Polpithigama	417.5552	67263	161	18926	0	67263	0	30.00	18.13
12	Kurunegala	Kobeigane	130.8780	32230	246	8581	0	32230	0	19.10	24.70
13	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
14	Hambantota	Tissamaharama	783.8008	60982	78	14829	0	60486	496	32.20	22.31
15	Kurunegala	Wariyapola	201.7589	56880	282	15207	0	56832	48	18.90	29.42
16	Anuradhapura	Padaviya	242.5157	21146	87	5452	0	21146	0	34.33	14.43
17	Kurunegala	Ibbagamuwa	219.4878	76344	348	19589	0	75913	431	24.30	26.50
18	Nuwara Eliya	Ambagamuwa	487.9105	203717	418	47145	14204	47474	142039	22.90	16.74
19	Kurunegala	Galgamuwa	273.2962	47844	175	12759	0	47844	0	25.70	22.00
20	Polonnaruwa	Medirigiriya	570.3679	57899	102	15189	0	57899	0	13.37	14.73
21	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
22	Moneragala	Siyambalanduwa	1065.6754	47438	45	10808	0	47438	0	51.80	13.52
23	Kurunegala	Ganewatta	147.1195	36812	250	9830	0	36770	42	23.20	22.57
24	Badulla	Mahiyanganaya	598.4674	67301	112	16499	0	67301	0	38.57	20.02
25	Kilinochchi	Poonakary									
26	Moneragala	Thanamalwila	661.4470	23172	35	5893	0	23172	0	35.80	14.18
27	Anuradhapura	Medawachchiya	492.1070	40469	82	10338	0	40469	0	21.34	24.09
28	Anuradhapura	Horowpothana	845.8179	29642	35	7578	0	29642	0	24.95	14.78
29	Kurunegala	Pannala	284.9191	114438	402	29467	0	113726	712	17.80	31.16
30	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
31	Anuradhapura	Nuwaragam Palatha Central	389.4952	53665	138	13055	11598	42067	0	20.14	20.32
32	Moneragala	Wellawaya	585.9537	50768	87	12698	0	50768	0	24.90	17.79
33	Puttalam	Karuwalagaswewa	503.9380	20225	40	5550	0	20225	0	23.77	14.80
34	Kurunegala	Nikaweratiya	152.4124	36370	239	9549	0	36370	0	19.40	24.93
35	Anuradhapura	Kahatagasdigiliya	366.6055	33572	92	8619	0	33572	0	19.63	20.03
36	Hambantota	Lunugamvehera	300.3473	25226	84	6922	0	25226	0	33.50	17.85
37	Badulla	Rideemaliyadda	438.2808	45759	104	10681	0	45582	177	51.15	14.89
38	Kurunegala	Mahawa	260.6953	50576	194	13674	0	50576	0	20.90	21.83
39	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
40	Kurunegala	Giribawa	207.1489	28093	136	7831	0	28093	0	24.00	19.56
41	Kurunegala	Kotawehera	182.1192	19273	106	5323	0	19273	0	21.70	26.07
42	Puttalam	Mahakumbuk kadawala	175.8432	16905	96	4686	0	16905	0	28.65	15.18
43	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
44	Hambantota	Angunukolapeles	174.0781	42426	244	10394	0	42426	0	33.00	16.83
45	Anuradhapura	Galenbidunuwawe	288.1528	40888	142	10454	0	40888	0	18.56	21.42
46	Anuradhapura	Nochchiyagama	843.5736	41601	49	11239	0	41601	0	16.98	19.61
47	Anuradhapura	Thalawa	220.5999	50919	231	13375	0	50919	0	19.44	22.25
48	Kurunegala	Rideegama	222.5431	80473	362	21118	0	78808	1665	32.76	26.28
49	Kurunegala	Rasnayakapura	125.8909	18814	149	5071	0	18678	136	23.00	20.46
50	Puttalam	Nawagattegama	171.9949	12956	75	3519	0	12956	0	26.44	13.19
51	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43

Sector Specific Data				DSD Name	Rank
No. of Cattle & Buffalo[d]	No. of Goats & Swine[d]	Total Heads of poultry[d]	Livestock Landholdings <= 1/4 Acre[d]		
10183	1677	756263	8155	Panduwasnuwara	1
13020	4028	92835	558	Anamaduwa	2
26965	7220	31213	21357	Eravur Pattu	3
7508	1566	320962	4757	Kuliyapitiya West	4
7027	5834	316964	9631	Arachchikattuwa	5
11497	6210	544377	1336	Bingiriya	6
8283	664	14844	626	Embilipitiya	7
20023	11685	116560	13620	Karachchi	8
13208	4544	374983	1435	Rambewa	9
9636	3657	5888	94	Suriyawewa	10
18510		36935	1708	Polpithigama	11
7248	2326	410247	764	Kobeigane	12
12228	1697	8229	523	Ambalantota	13
15496	2475	17281	772	Tissamaharama	14
11027	1748	261608	904	Wariyapola	15
9729	1527	10264	17	Padaviya	16
14330	1034	105528	6353	Ibbagamuwa	17
5462	51301	51301	2043	Ambagamuwa	18
13267	4143	33750	1282	Galgamuwa	19
8149	1473	21600	1035	Medirigiriya	20
9467	3000	48344	3017	Hambantota	21
21898	154	11075	82	Siyambalanduwa	22
10328	829	32299	2122	Ganewatta	23
20146	1949	37354	2202	Mahiyanganaya	24
9984	5471	25771	14645	Poonakary	25
9513	278	3096	36	Thanamalwila	26
10546	3058	19473	410	Medawachchiya	27
18436	2080	11983	180	Horowpothana	28
12701		235613	10597	Pannala	29
2929	3897	111976	20167	Puttalam	30
9675	3814	47370	1479	Nuwaragam Palatha Central	31
11990	584	24645	222	Wellawaya	32
10004	2396	9621	167	Karuwalagaswewa	33
8999	1821	129735	857	Nikaweratiya	34
14464	3204	44905	352	Kahatagasdigiliya	35
8446	2170	26068	169	Lunugamvehera	36
14068	1529	28618	2708	Rideemaliyadda	37
13584	2343	87952	1512	Mahawa	38
2233	9866	47450	20368	Kalpitiya	39
8742	4851	10267	520	Giribawa	40
13914	3545	91880	15	Kotawehera	41
9162	4465	111609	189	Mahakumbuk kadawala	42
7527	5589	73888	16914	Mundalama	43
10270	152	3632	148	Angunukolapeles	44
15440	2788	11197	80	Galenbidunuwawe	45
10133	4456	12719	760	Nochchiyagama	46
7820	2680	109810	2859	Thalawa	47
11496	2282	62409	5935	Rideegama	48
7523	2827	67476	1002	Rasnayakapura	49
6984	2954	18966	235	Nawagattegama	50
6675	4195	462428	5275	Ududdawa	51

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
52	Moneragala	Medagama	241.1373	32467	135	7664	0	32467	0	30.20	14.89
53	Anuradhapura	Maha Vilachchiya	624.8276	18557	30	4630	0	18557	0	31.16	17.85
54	Moneragala	Madulla	722.5206	28358	39	6678	0	28358	0	40.70	19.44
55	Anuradhapura	Palagala	226.9676	29837	131	8196	0	29837	0	23.83	21.98
56	Kurunegala	Ambanpola	142.5265	19964	140	5488	0	19964	0	23.10	23.46
57	Badulla	Uva Paranagama	137.2816	76524	557	19213	0	65809	10715	33.35	19.52
58	Anuradhapura	Thirappane	278.9562	23378	84	6143	0	23378	0	18.59	23.27
59	Anuradhapura	Kebithigollewa	611.9821	19457	32	4903	0	19457	0	27.74	18.03
60	Anuradhapura	Galnewa	140.2283	30344	216	8165	0	30344	0	18.46	20.55
61	Anuradhapura	Mihintale	234.9169	26786	114	6657	1523	25263	0	18.97	29.03
62	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
63	Kurunegala	Kuliyapitiya East	113.2748	46966	415	11728	0	46839	127	20.32	27.57

Sector Specific Data				DSD Name	Rank
No. of Cattle & Buffalo[d]	No. of Goats & Swine[d]	Total Heads of Poultry[d]	Livestock Landholdings <= 1/4 acre[d]		
10721	1146	10281	3032	Medagama	52
7911	3403	5771	111	Maha Vilachchiya	53
10591	425	10320	628	Madulla	54
8018	1502	71800	918	Palagala	55
7523	1466	69731	393	Ambanpola	56
7290	1174	19973	5006	Uva Paranagama	57
9480	3528	16612	975	Thirappane	58
6897	557	42200	38	Kebithigollewa	59
5703	1117	68576	439	Galnewa	60
8201	1845	9325	313	Mihintale	61
4441	2874	113164	7344	Chilaw	62
6236		78879	6484	Kuliyapitiya East	63

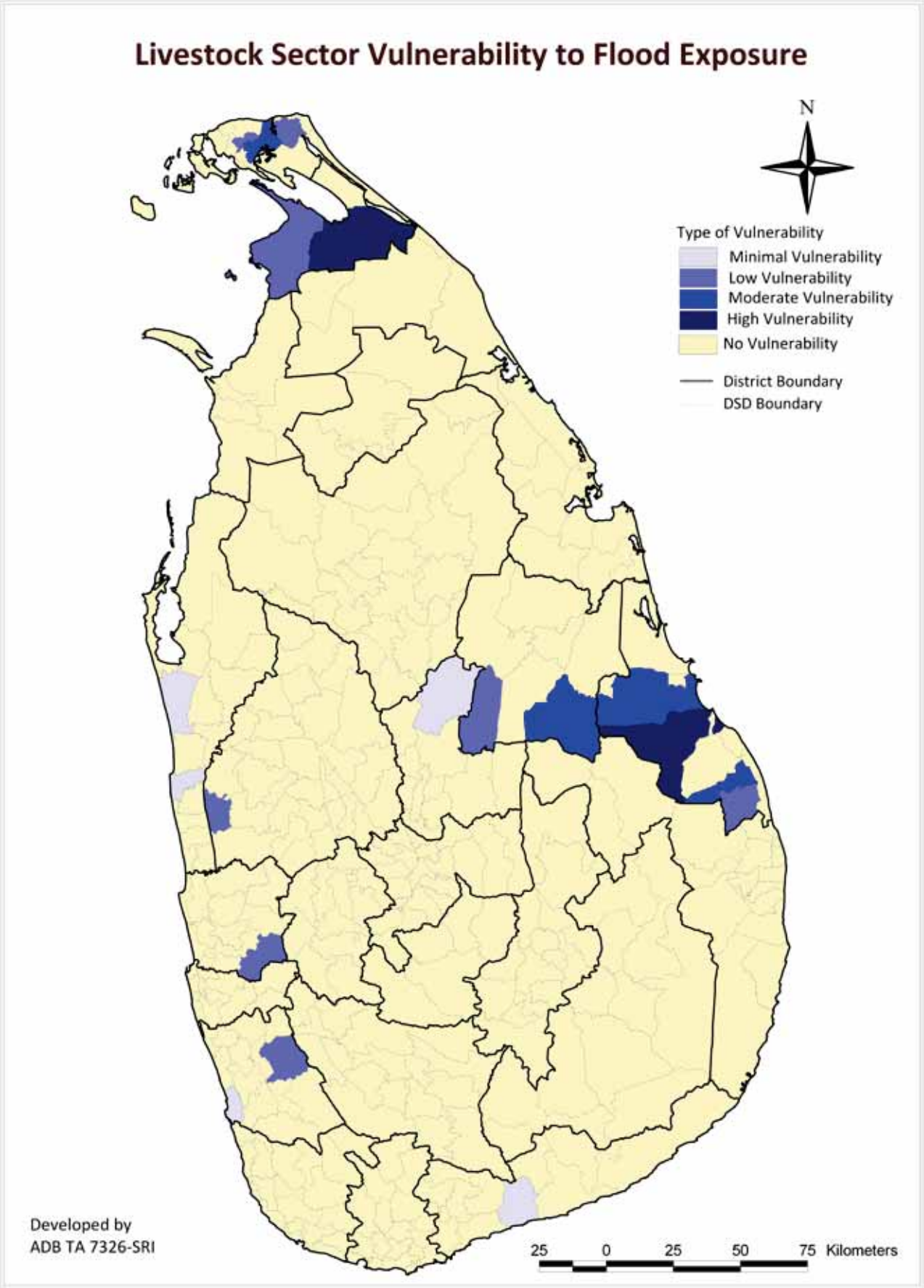
Livestock Sector Vulnerability to Flood Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • total heads of cattle/buffalo • total heads of goats and swine • number of poultry (number of birds)	A composite of data (at DSD level) on: • percentage of population employed in agriculture who have completed secondary education • number of landholdings ≤ ¼ acre • % of females with education above Grade 5 (from among the population employed in agriculture) • Percentage of households with agriculture as primary source of income
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- Vulnerability to flood exposure in the livestock sector is clustered primarily in the North and East.
- 2 DSDs emerge as highly vulnerable and 4 more as moderately vulnerable to flood exposure. These 6 DSDs combined have:
  - 83,826 heads of cattle and buffalo, and 41,906 heads of goats and swine.
  - Almost 285,127 heads of poultry.


Livestock Sector Vulnerability to Flood Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Livestock Sector Vulnerability to Flood Exposure

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Kilinochchi	Karachchi									
2	Batticaloa	Eravur Pattu									
3	Polonnaruwa	Dimbulagala	552.3964	63349	115	16757	0	63339	10	22.59	18.60
4	Batticaloa	Koralai Pattu (Valach.)									
5	Batticaloa	Manmunai South - West									
6	Jaffna	Kopay									
7	Gampaha	Dompe	182.1586	130021	714	31962	0	130021	0	21.10	31.48
8	Kurunegala	Ududbaddawa	117.5985	48800	415	12669	0	48742	58	17.70	29.43
9	Kalutara	Bulathsinhala	209.4387	59787	285	15611	0	53331	6456	27.40	22.09
10	Kilinochchi	Poonakary									
11	Jaffna	Uduvil									
12	Jaffna	Karaveddy									
13	Polonnaruwa	Elahera	353.1772	39908	113	10446	0	39908	0	18.45	17.46
14	Batticaloa	Porativu Pattu									
15	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
16	Matale	Dambulla	455.1342	60976	134	15285	0	60959	17	19.90	23.88
17	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
18	Puttalam	Chilaw	93.6034	59890	640	14448	23533	36357	0	20.11	21.74
19	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20

Sector Specific Data				DSD Name	Rank
No. of Cattle & Buffalo[d]	No. of Goats & Swine[d]	Total Heads of Poultry[d]	Livestock Landholdings <= 1/4 Acre[d]		
20023	11685	116560	13620	Karachchi	1
26965	7220	31213	21357	Eravur Pattu	2
16320	4419	21495	878	Dimbulagala	3
5667	5459	63700	19894	Koralai Pattu (Valach.)	4
7285	2274	10841	7373	Manmunai South - West	5
7566	10849	41328	28891	Kopay	6
7052	2083	249930	8715	Dompe	7
6675	4195	462428	5275	Udubaddawa	8
3473	482	283390	1513	Bulathsinhala	9
9984	5471	25771	14645	Poonakary	10
3045	7213	56740	33484	Uduvil	11
6173	8403	46167	36780	Karaveddy	12
8833	560	59791	729	Elahera	13
6579	1854	41771	5494	Porativu Pattu	14
7527	5589	73888	16914	Mundalama	15
8874	1592	77151	889	Dambulla	16
12228	1697	8229	523	Ambalantota	17
4441	2874	113164	7344	Chilaw	18
1849	4114	312760	9387	Beruwala	19

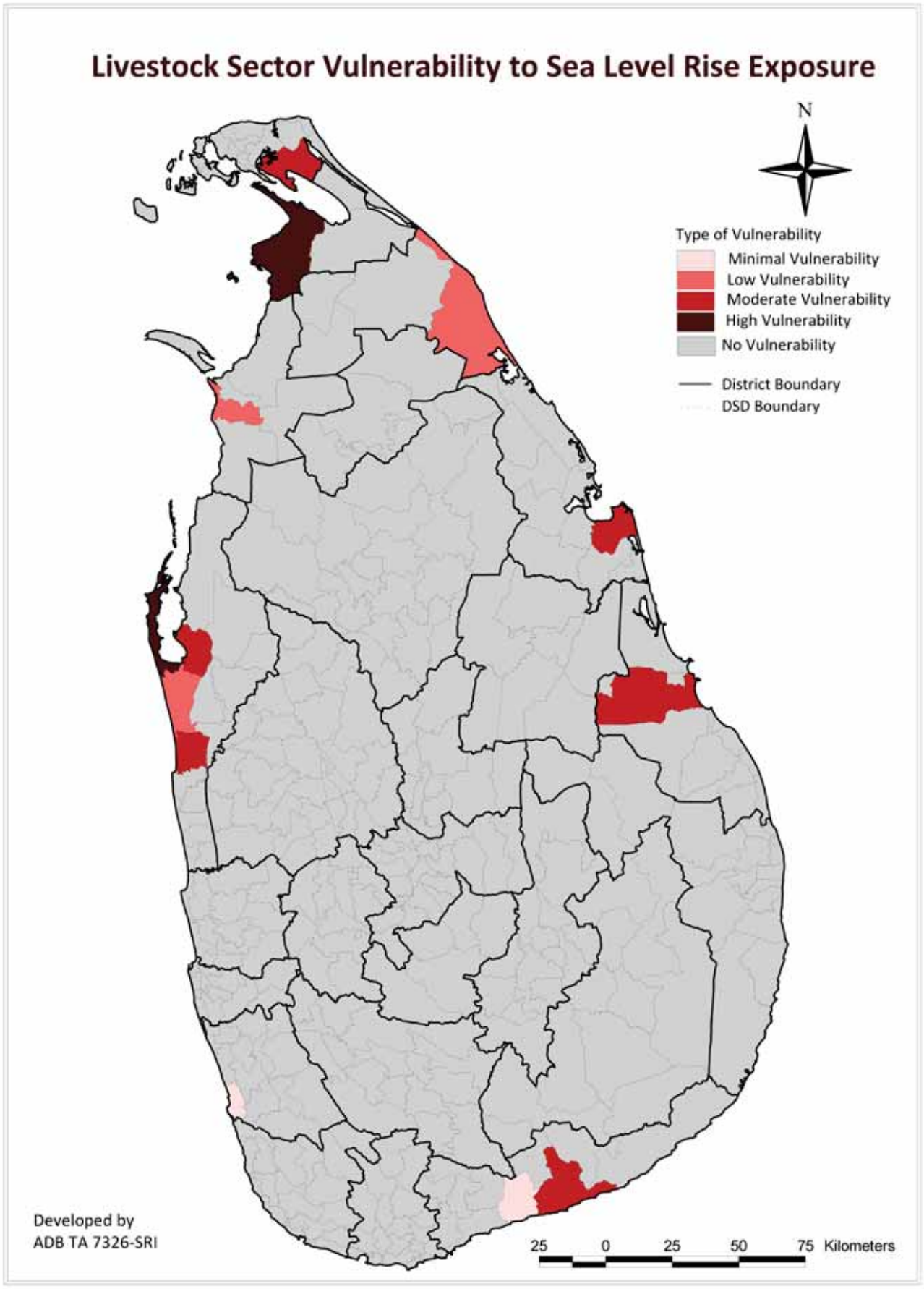
Livestock Sector Vulnerability to Sea Level Rise Exposure

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	**The Adaptive Capacity Index**
A composite of data (at DSD level) on: • total heads of cattle/buffalo • total heads of goats and swine • number of poultry (number of birds)	A composite of data (at DSD level) on: • percentage of population employed in agriculture who have completed secondary education • number of landholdings ≤ ¼ acre • % of females with education above Grade 5 (from among the population employed in agriculture) • Percentage of households with agriculture as primary source of income
Raw data sources: Census of Agriculture 2002, Department of Census and Statistics	

Some of the key findings include:

- Livestock sector vulnerability to sea level rise exposure appears to be generally low, and localized in a very few areas.
- 2 DSDs emerge as highly vulnerable in this regard, and 6 more as moderately vulnerable to sea level rise exposure. These 8 DSDs combined have:
  - 52,381 total heads of cattle and buffalo, and 41,241 total heads of goats and swine.
  - Slightly over 701,410 heads of poultry.


Livestock Sector Vulnerability to Sea Level Rise Exposure
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
No Vulnerability
District Boundary
DSD Boundary
Developed by
ADB TA 7326-SRI
25 0 25 50 75 Kilometers

Livestock Sector Vulnerability to Sea Level Rise Exposure

High Vulnerability Moderate Vulnerability Low Vulnerability Minimal Vulnerability

Rank	District Name	DSD Name	Physical Characteristics				Demographics				
			Area (Sq. km)[a]	Total Population[b]	Population Density (Per Sq. km)[a]	No. of Households[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	% in Poverty[c]	% Completed Secondary Education[a]
1	Puttalam	Kalpitiya	158.7548	81780	515	18185	0	81627	153	45.34	13.63
2	Kilinochchi	Poonakary									
3	Batticaloa	Koralai Pattu (Valach.)									
4	Jaffna	Chavakachcheri									
5	Trincomalee	Muttur									
6	Puttalam	Puttalam	178.4049	71091	398	15898	41761	29330	0	25.08	21.59
7	Puttalam	Arachchikattuwa	162.6380	38092	234	9912	0	37402	690	21.82	16.64
8	Hambantota	Hambantota	338.9857	46757	138	10945	11134	35623	0	31.30	23.32
9	Mulattivu	Maritimepattu									
10	Mannar	Nanaddan									
11	Puttalam	Mundalama	241.4497	56294	233	13534	0	56294	0	41.08	14.73
12	Hambantota	Ambalantota	211.3413	64361	305	15334	0	63426	935	33.30	21.36
13	Kalutara	Beruwala	71.6785	144733	2019	29635	33096	111637	0	22.10	28.20

Sector Specific Data				DSD Name	Rank
No. of Cattle & Buffalo[d]	No. of Goats & Swine[d]	Total Heads of Poultry[d]	Livestock Landholdings <= 1/4 Acre[d]		
2233	9866	47450	20368	Kalpitiya	1
9984	5471	25771	14645	Poonakary	2
5667	5459	63700	19894	Koralai Pattu (Valach.)	3
7478	5618	43461	18221	Chavakachcheri	4
7596	2096	43744	28558	Muttur	5
2929	3897	111976	20167	Puttalam	6
7027	5834	316964	9631	Arachchikattuwa	7
9467	3000	48344	3017	Hambantota	8
5956	3045	38855	17099	Maritimepattu	9
8482	1437	30926	6344	Nanaddan	10
7527	5589	73888	16914	Mundalama	11
12228	1697	8229	523	Ambalantota	12
1849	4114	312760	9387	Beruwala	13

Health

Good health is a necessity for intellectual, physical and spiritual growth, and one of the driving forces behind economic and social development of the country. Sri Lanka has one of the leading healthcare systems among developing countries. However, with the looming presence of climate change, Sri Lanka's health sector will have to step up and play a pivotal role in assessing vulnerability and adapting to respond to its potential impacts.

Climate change impacts are expected to be significant in the areas of vector borne diseases (essentially mosquito borne), rodent borne diseases, food and water borne diseases, nutritional status, and other environment related disorders. Mosquito vector borne diseases have emerged as a serious public health problem in Sri Lanka, particularly dengue fever. Dengue is spreading rapidly to newer areas, with outbreaks occurring more frequently and explosively. The prevailing climatic conditions, environmental pollution, rapid urbanization, over-crowding of cities and careless human practices are proving conducive for the rapid breeding of the mosquito vector and the spread of this infection. According to data for 2009, Colombo still remains with the highest incidence rate for dengue followed by Trincomalee and Matara districts. 2009 data showed an incidence rate of 1,420 per 100,000 population.

The main rodent borne disease in Sri Lanka is leptospirosis. This is the second major communicable disease in the country, is currently on the rise, and is expected to further increase due to climate change. The incidence rate for leptospirosis has been in the range of 14 to 20 cases per 100,000 population barring epidemic years of 2003 (with 24/100,000) and 2008 (37/100,000). The main food and water borne illnesses are typhoid, dysentery, cholera (not reported since 1993), diarrhoea, hepatitis A & B, and polio. Of these, dysentery is the most prevalent in Sri Lanka though its incidence has been declining since 2000. Incidence ranged from 14.2 to 59.8 cases per 100,000 population with the case fatality rate being less than 1%, except in 2005 when it was 1.6%. Extreme conditions resulting from climate change induced impacts (floods, land-slides and droughts) are expected to cause more water and food borne diseases. The main vulnerabilities associated with climate change on the health sector are discussed in detail in the *Health SVP* and is not detailed here as the mapping exercise did not take into account the exposure indices for the health sectors for reasons described in the Methodology section of this book.

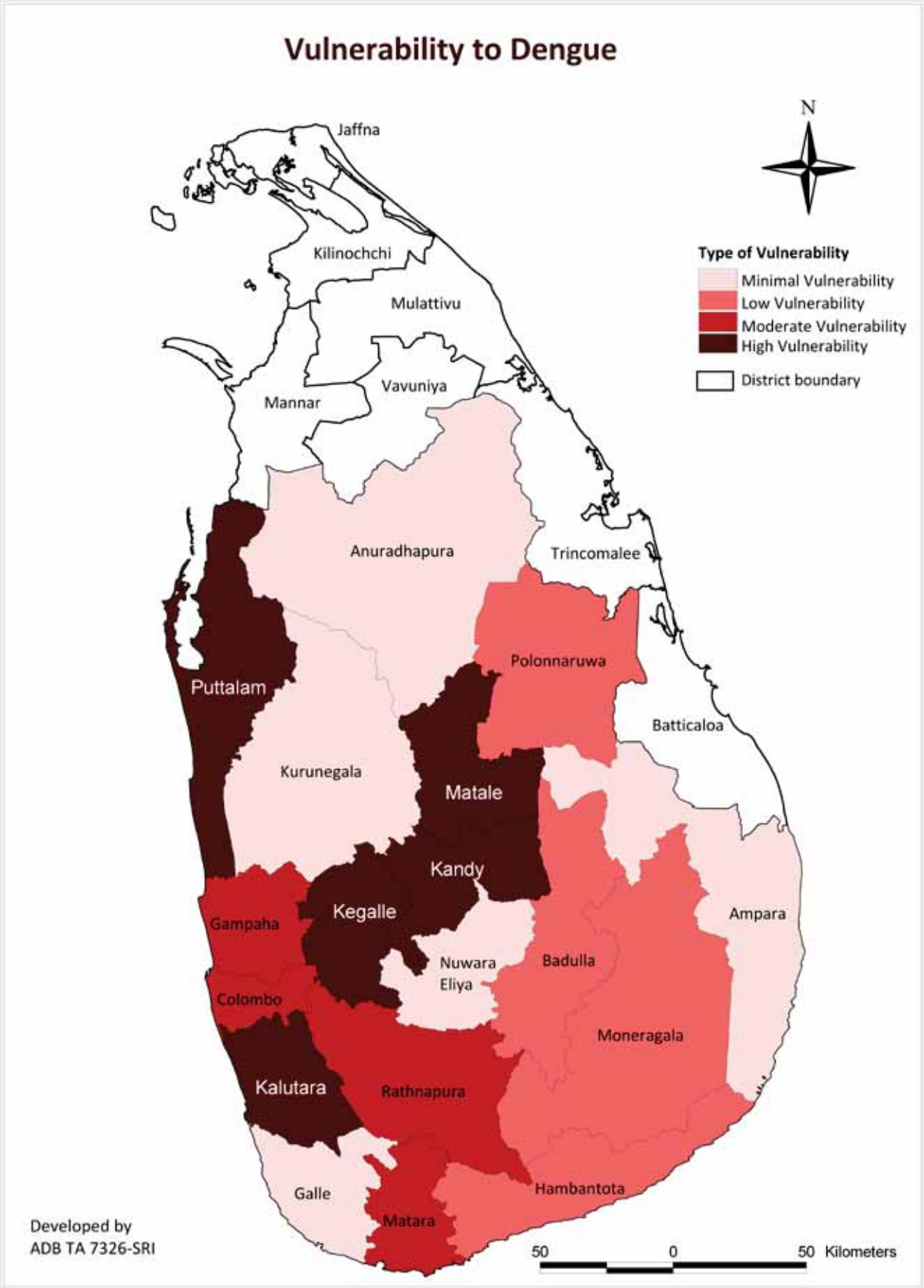
Vulnerability to Dengue

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
• Average incidence rate for dengue fever (2004 – 2008)	• % completed secondary education • % above poverty line • # of hospital beds • # of hospitals
Raw data sources: Population and Housing Census, 2001; Department of Census and Statistics (2010); Epidemiology Unit; Ministry of Health, provided for preparation of this report, 2010	

Some of the key findings include:

- Matale, Kandy, Kalutara, Kegalle and Puttalam Districts show high vulnerability to dengue.
  - o They support a population of 4,660,000 of whom 9% are urban and 86% are rural.
  - o Combined, this area has 229 hospitals and 14,385 hospital beds.
- A further 4 Districts show moderate vulnerability to dengue.
  - o They support a population of 6,694,000 of whom 27% are urban and 75% are rural.
  - o Combined, this area has 202 hospitals and 22,231 hospital beds.

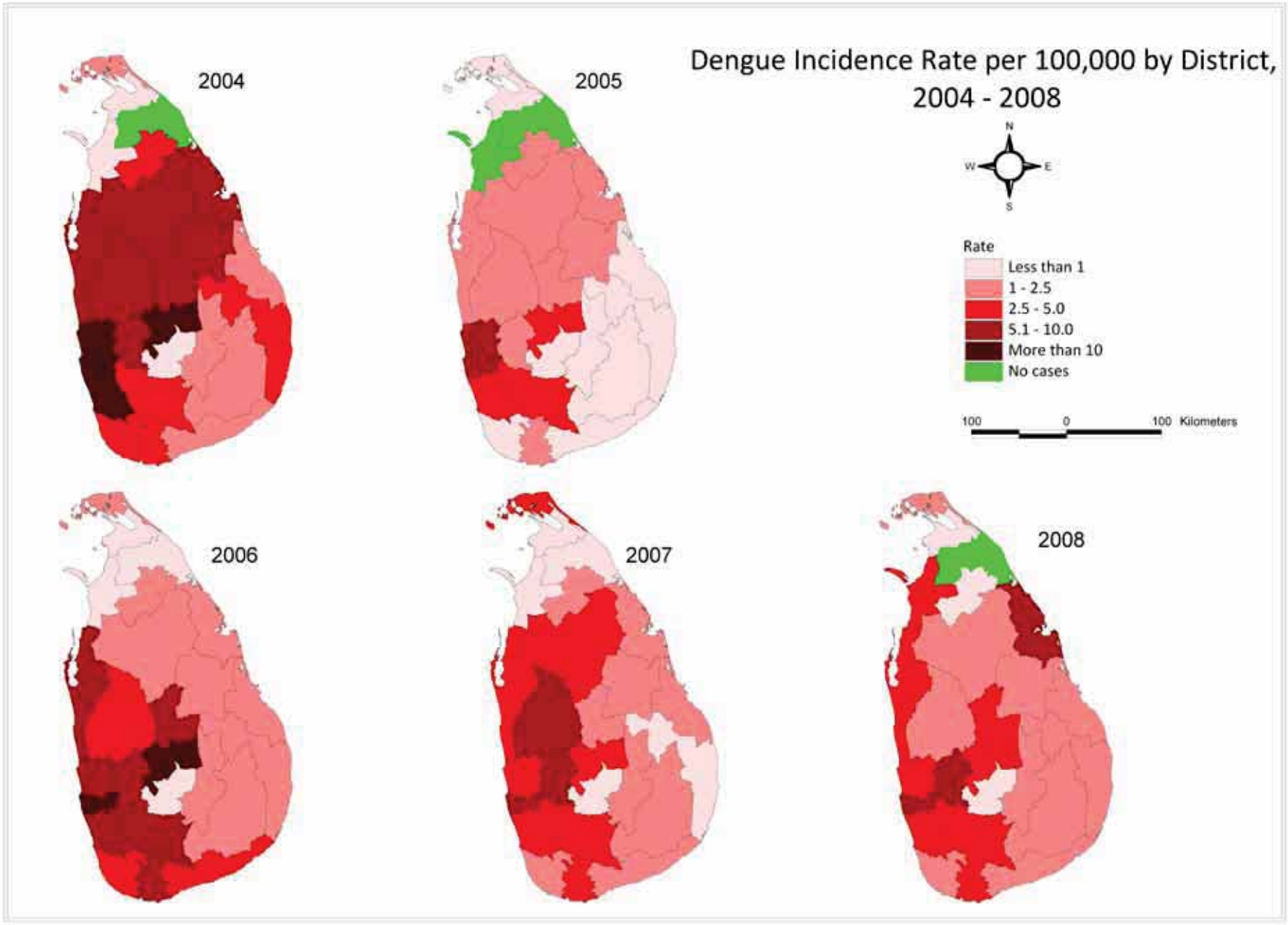

Vulnerability to Dengue
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
District boundary
Jaffna
Kilinochchi
Mulattivu
Vavuniya
Mannar
Anuradhapura
Trincomalee
Polonnaruwa
Puttalam
Batticaloa
Kurunegala
Matale
Kandy
Kegalle
Gampaha
Ampara
Nuwara Eliya
Badulla
Colombo
Moneragala
Kalutara
Rathnapura
Galle
Hambantota
Matara
Developed by
ADB TA 7326-SRI
50 0 50 Kilometers

Vulnerability to Dengue

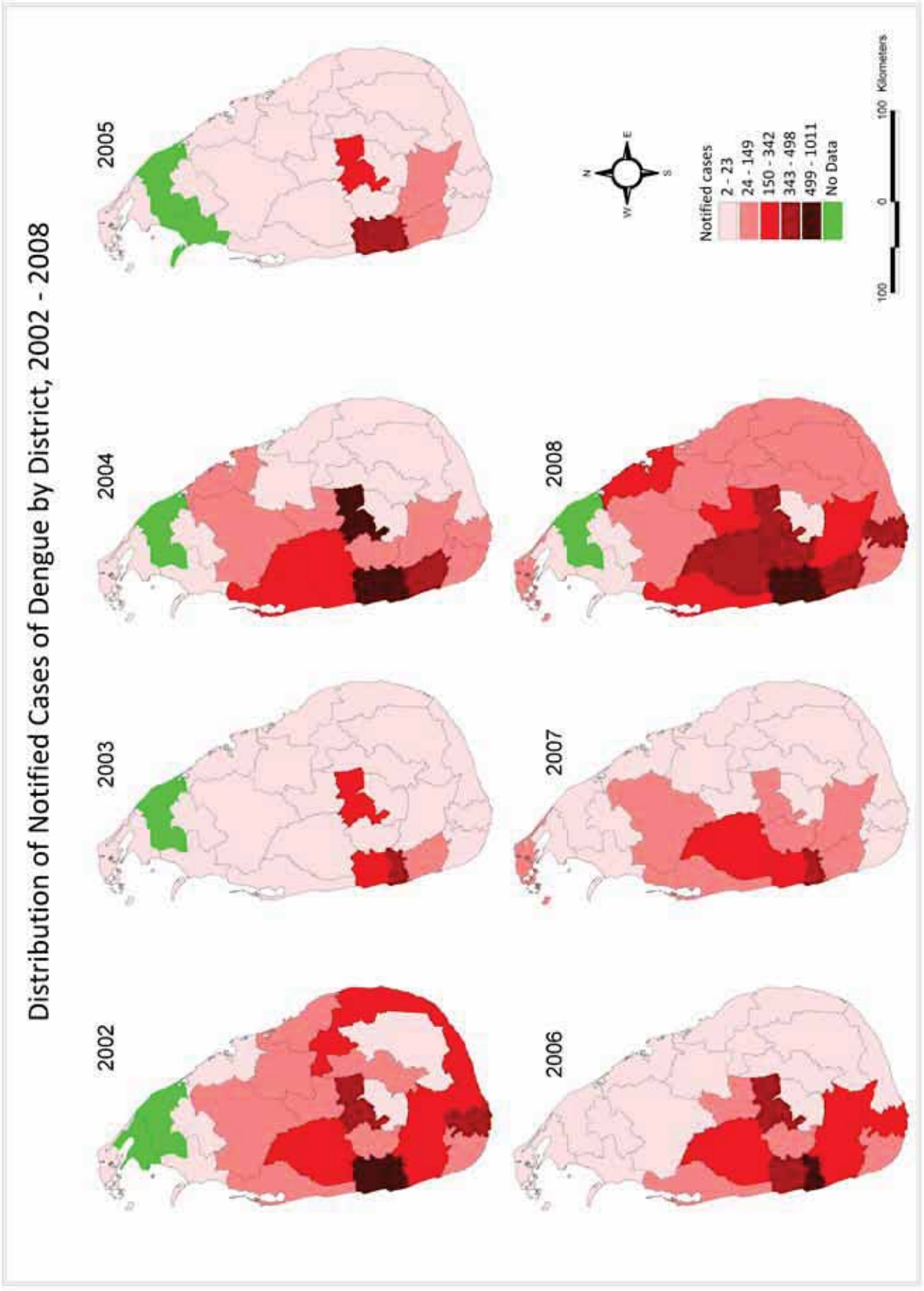
High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	Physical Characteristics							Demographics						
		Area (Sq. km)[i]	% Forest Land[l]	Total Extent of Agri. (Acers)[d]	No. of House-holds[b]	No. of Occupied Housing Units[b]	Total Population 2010 ('000)[i]	Population Density (Per Sq. km)-2010[a]	Urban[b]	Rural[b]	Estate[b]	# Completed Secondary Education[b]	% Completed Secondary Education[a]	Pop. Below Poverty Line	% in Poverty (HCI)[c]
1	Puttalam	3072	25	159647	176544	174737	779	254	65294	642210	2173	133288	21.39	104	13.10
2	Kalutara	1598	13	141805	250939	245784	1135	710	113188	915477	37574	314334	33.03	149	13.00
3	Matale	1993	41	122391	110886	108566	497	249	36103	383468	21757	99867	25.23	89	18.90
4	Kegalle	1693	10	149476	195853		818	483	17139	712914	55471	209434	29.71	175	21.00
5	Kandy	1940	17	150007	299870	291454	1431	738	155987	1030172	92869	368009	32.17	230	17.00
6	Ratnapura	3275	20	243003	245743	242882	1125	344	58245	855178	102384	214927	23.43	292	26.60
7	Colombo	699	3	41513	493085	473045	2553	3652	1229572	1014388	7314	888246	44.28	125	5.40
8	Matara	1283	16	156547	177613	174712	839	654	64361	676499	20510	191971	28.00	119	14.70
9	Gampaha	1387	0	143495	487184	475847	2177	1570	300933	1762028	723	714378	38.46	196	8.70
10	Hambantota	2609	21	202304	128008	126362	571	219	21571	503412	1431	110566	23.37	73	12.70
11	Moneragala	5639	41	225218	96598	95966	440	78	0	388226	9149	66552	18.81	150	33.20
12	Polonnaruwa	3293	38	163800	91718	90999	410	125	0	358679	305	67828	21.23	50	12.70
13	Badulla	2861	19	156800	189925	185268	886	310	51536	567178	161269	160203	23.36	197	23.70
14	Kurunegala	4816	5	534464	380213	376352	1563	325	34691	1418882	6642	383985	29.12	238	15.40
15	Nuwara Eliya	1741	25	60274	169540	164886	761	437	43073	283659	376878	108874	17.84	254	33.80
16	Ampara	4415	38	172001	137741	132371	644	146	112536	480461	0	111701	21.58	64	10.90
17	Galle	1652	13	167401	233027	229521	1084	656	109921	863309	17257	263578	29.65	146	13.70
18	Anuradhapura	7179	35	364816	189699	186697	830	116	53151	691573	969	156644	23.61	118	14.90

Sector Specific Data			District Name	Rank
# of Hospitals [m and a]	# of Hospital Beds[j]	Average Dengue Incidence Rate (2004-2008) [k and a]		
40	1676	51.63	Puttalam	1
28	2658	65.73	Kalutara	2
36	1522	49.06	Matale	3
41	2229	50.41	Kegalle	4
84	6300	77.08	Kandy	5
50	3136	41.06	Ratnapura	6
51	11175	102.96	Colombo	7
37	2259	42.94	Matara	8
64	5661	75.79	Gampaha	9
32	1644	21.35	Hambantota	10
28	1350	10.67	Moneragala	11
46	2746	27.52	Polonnaruwa	12
52	3202	13.31	Badulla	13
98	5296	37.79	Kurunegala	14
45	1804	5.50	Nuwara Eliya	15
51	2536	12.91	Ampara	16
48	3511	16.13	Galle	17
122	6676	29.84	Anuradhapura	18



Developed by ADB TA 7326-SRI


Distribution of Notified Cases of Dengue by District, 2002 - 2008
2002
2003
2004
2005
2006
2007
2008
N
E
S
W
Notified cases
2 - 23
24 - 149
150 - 342
343 - 498
499 - 1011
No Data
100 0 100 Kilometers
Developed by ADB TA 7326-SRI

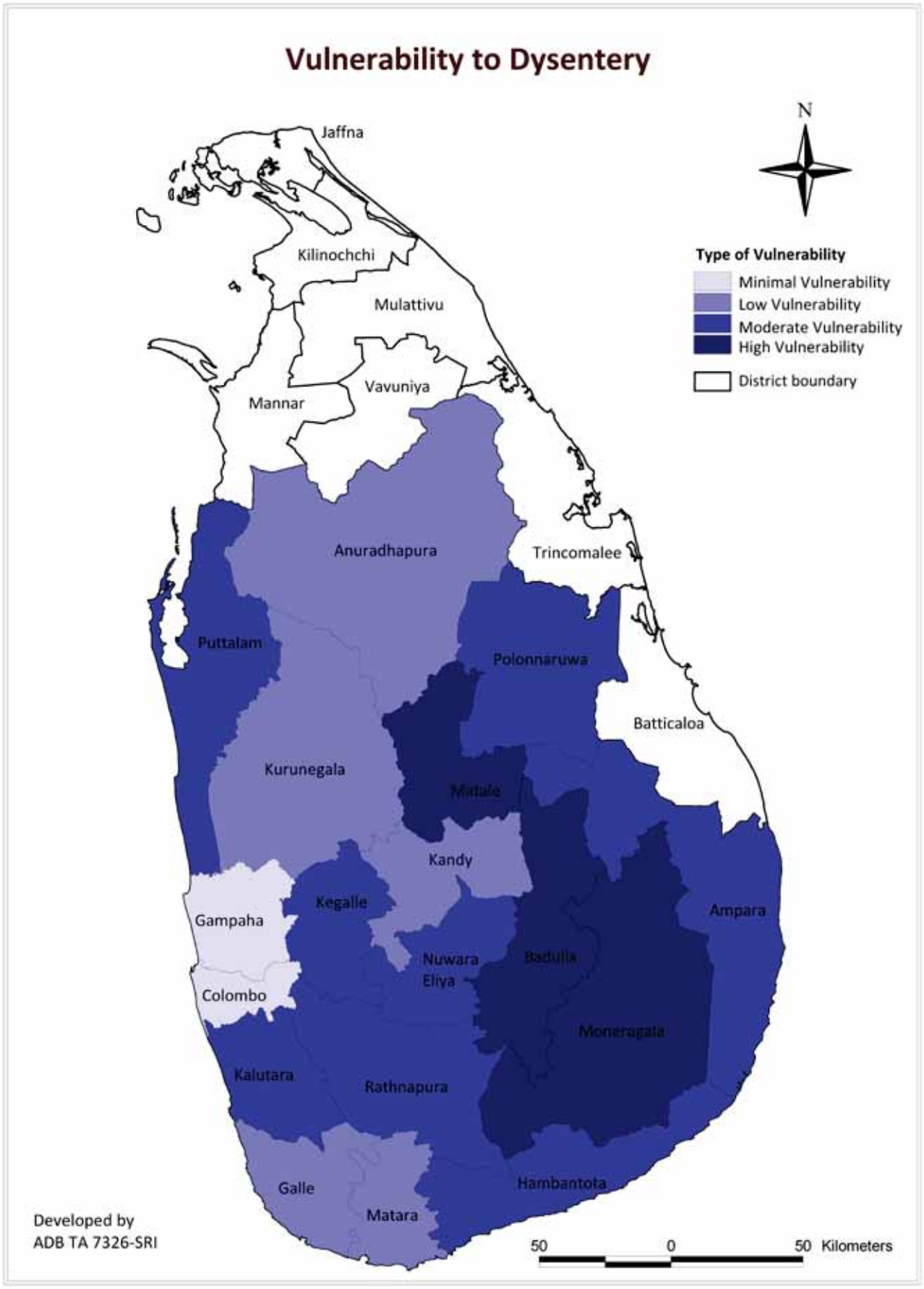
Vulnerability to Dysentery

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
• Average incidence rate for dengue fever (2004 – 2008)	• % completed secondary education • % above poverty line • # of hospital beds • # of hospitals
Raw data sources: Population and Housing Census, 2001; Epidemiology Unit; Ministry of Health, provided for preparation of this report, 2010	

Some of the key findings include:

- Moneragla, Badulla and Matale Districts show high vulnerability to dysentery.
  - o They support a population of 1,823,000 of whom 5.4% are urban and 82.7% are rural.
  - o Combined, this area has 116 hospitals and 6,074 hospital beds.
- Further 8 Districts show moderate vulnerability.
  - o They support a population of 6,243,000 of whom 7.5% are urban and 82.5% are rural.
  - o Combined, this area has 333 hospitals and 18,429 hospital beds.

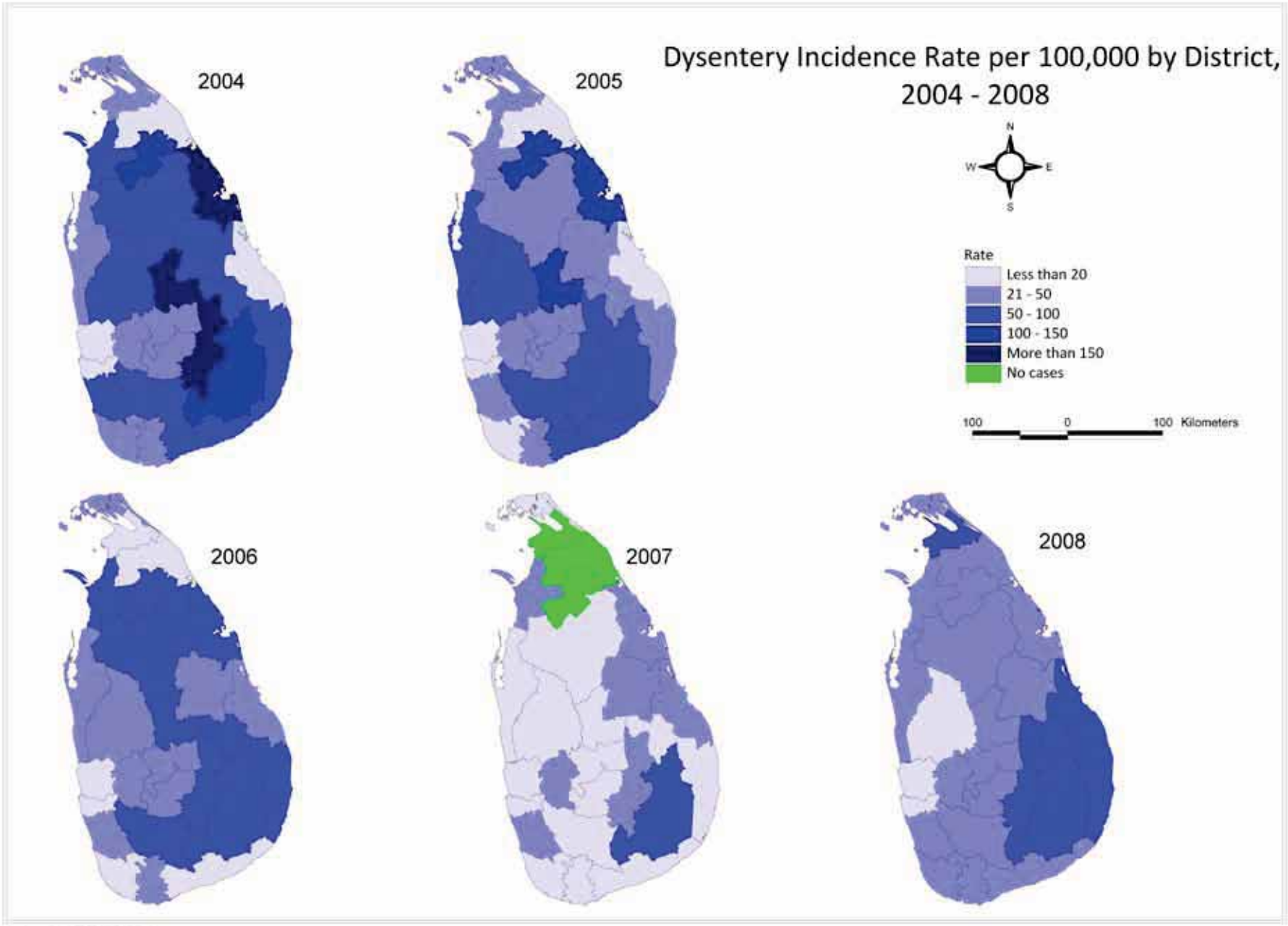

Vulnerability to Dysentery
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
District boundary
Jaffna
Kilinochchi
Mulattivu
Vavuniya
Mannar
Anuradhapura
Trincomalee
Puttalam
Polonnaruwa
Batticaloa
Kurunegala
Matale
Kandy
Kegalle
Gampaha
Ampara
Nuwara Eliya
Badulla
Colombo
Moneragala
Kalutara
Rathnapura
Galle
Hambantota
Matara
Developed by
ADB TA 7326-SRI
50
0
50 Kilometers

Vulnerability to Dysentery

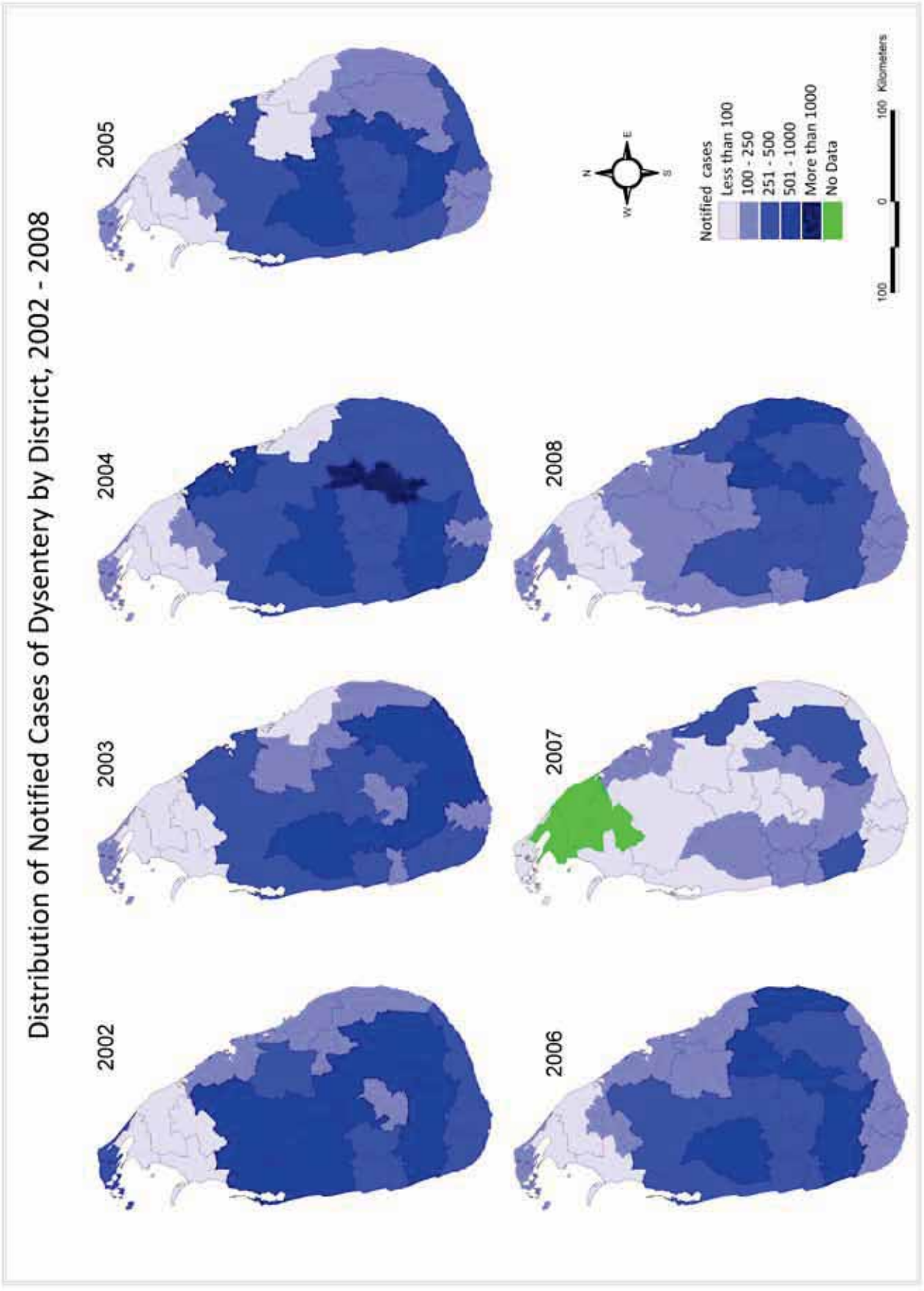
High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	Physical Characteristics							Demographics						
		Area (Sq. km)[i]	% Forest Land[i]	Total Extent of Agri. (Acers)[d]	No. of House-holds[b]	No. of Occupied Housing Units[b]	Total Population 2010 ('000)[i]	Population Density (Per Sq. km)-2010[a]	Urban[b]	Rural[b]	Estate[b]	# Completed Secondary Education[b]	% Completed Secondary Education[a]	Pop. Below Poverty Line	% in Poverty (HCI)[c]
1	Moneragala	5639	40.50	225218	96598	95966	440	78	0	388226	9149	66552	18.81	150	33.20
2	Badulla	2861	19.00	156800	189925	185268	886	310	51536	567178	161269	160203	23.36	197	23.70
3	Matale	1993	40.50	122391	110886	108566	497	249	36103	383468	21757	99867	25.23	89	18.90
4	Ampara	4415	37.50	172001	137741	132371	644	146	112536	480461	0	111701	21.58	64	10.90
5	Ratnapura	3275	20.00	243003	245743	242882	1125	344	58245	855178	102384	214927	23.43	292	26.60
6	Hambantota	2609	20.50	202304	128008	126362	571	219	21571	503412	1431	110566	23.37	73	12.70
7	Nuwara Eliya	1741	24.50	60274	169540	164886	761	437	43073	283659	376878	108874	17.84	254	33.80
8	Puttalam	3072	25.00	159647	176544	174737	779	254	65294	642210	2173	133288	21.39	104	13.10
9	Kegalle	1693	9.50	149476	195853	193578	818	483	17139	712914	55471	209434	29.71	175	21.00
10	Polonnaruwa	3293	38.00	163800	91718	90999	410	125	0	358679	305	67828	21.23	50	12.70
11	Kalutara	1598	13.00	141805	250939	245784	1135	710	113188	915477	37574	314334	33.03	149	13.00
12	Matara	1283	16.00	156547	177613	174712	839	654	64361	676499	20510	191971	28.00	119	14.70
13	Kurunegala	4816	5.00	534464	380213	376352	1563	325	34691	1418882	6642	383985	29.12	238	15.40
14	Anuradhapura	7179	35.00	364816	189699	186697	830	116	53151	691573	969	156644	23.61	118	14.90
15	Galle	1652	13.00	167401	233027	229521	1084	656	109921	863309	17257	263578	29.65	146	13.70
16	Kandy	1940	17.00	150007	299870	291454	1431	738	155987	1030172	92869	368009	32.17	230	17.00
17	Gampaha	1387	0.30	143495	487184	475847	2177	1570	300933	1762028	723	714378	38.46	196	8.70
18	Colombo	699	2.80	41513	493085	473045	2553	3652	1229572	1014388	7314	888246	44.28	125	5.40

Sector Specific Data			District Name	Rank
# of Hospitals [m and a]	# of Hospital Beds[j]	Average Dysentery Incidence Rate (2004-2008) [k and a]		
28	1350	81.56	Moneragala	1
52	3202	85.64	Badulla	2
36	1522	85.81	Matale	3
51	2536	60.76	Ampara	4
50	3136	52.19	Ratnapura	5
32	1644	39.54	Hambantota	6
45	1804	37.94	Nuwara Eliya	7
40	1676	35.05	Puttalam	8
41	2229	39.00	Kegalle	9
46	2746	39.05	Polonnaruwa	10
28	2658	41.00	Kalutara	11
37	2259	22.68	Matara	12
98	5296	35.51	Kurunegala	13
122	6676	36.19	Anuradhapura	14
48	3511	16.99	Galle	15
84	6300	26.75	Kandy	16
64	5661	13.16	Gampaha	17
51	11175	11.60	Colombo	18



Developed by ADB TA 7326-SRI


Distribution of Notified Cases of Dysentery by District, 2002 - 2008
2002
2003
2004
2005
2006
2007
2008
N
E
S
W
Notified cases
Less than 100
100 - 250
251 - 500
501 - 1000
More than 1000
No Data
100
0
100 Kilometers
Developed by ADB TA 7326-SRI

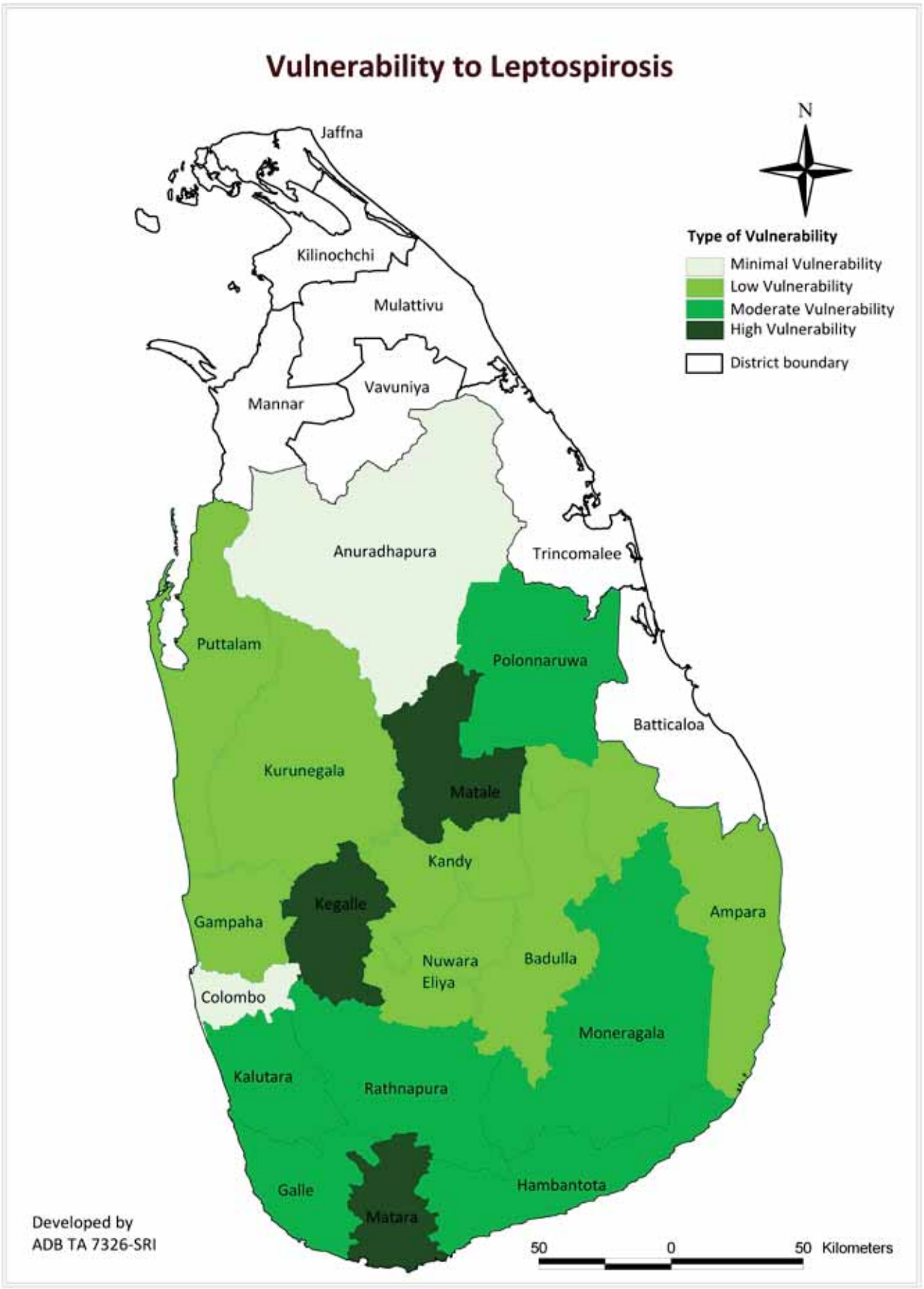
Vulnerability to Leptospirosis

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
• Average incidence rate for dengue fever (2004 – 2008)	• % completed secondary education • % above poverty line • # of hospital beds • # of hospitals
Raw data sources: Population and Housing Census, 2001; Epidemiology Unit; Ministry of Health, provided for preparation of this report, 2010	

Some of the key findings include:

- Matara, Kegalle and Matale Districts show high vulnerability to Leptospirosis.
  - o They support a population of 2,154,000 of whom 5.9% are urban and 89% are rural.
  - o Combined, this area has 114 hospitals and 6,010 hospital beds.
- A Further 6 Districts show moderate vulnerability to Leptospirosis.
  - o They support a population of 4,765,000 of whom 7% are urban and 89% are rural.
  - o Combined, this area has 232 hospitals and 15,045 hospital beds.

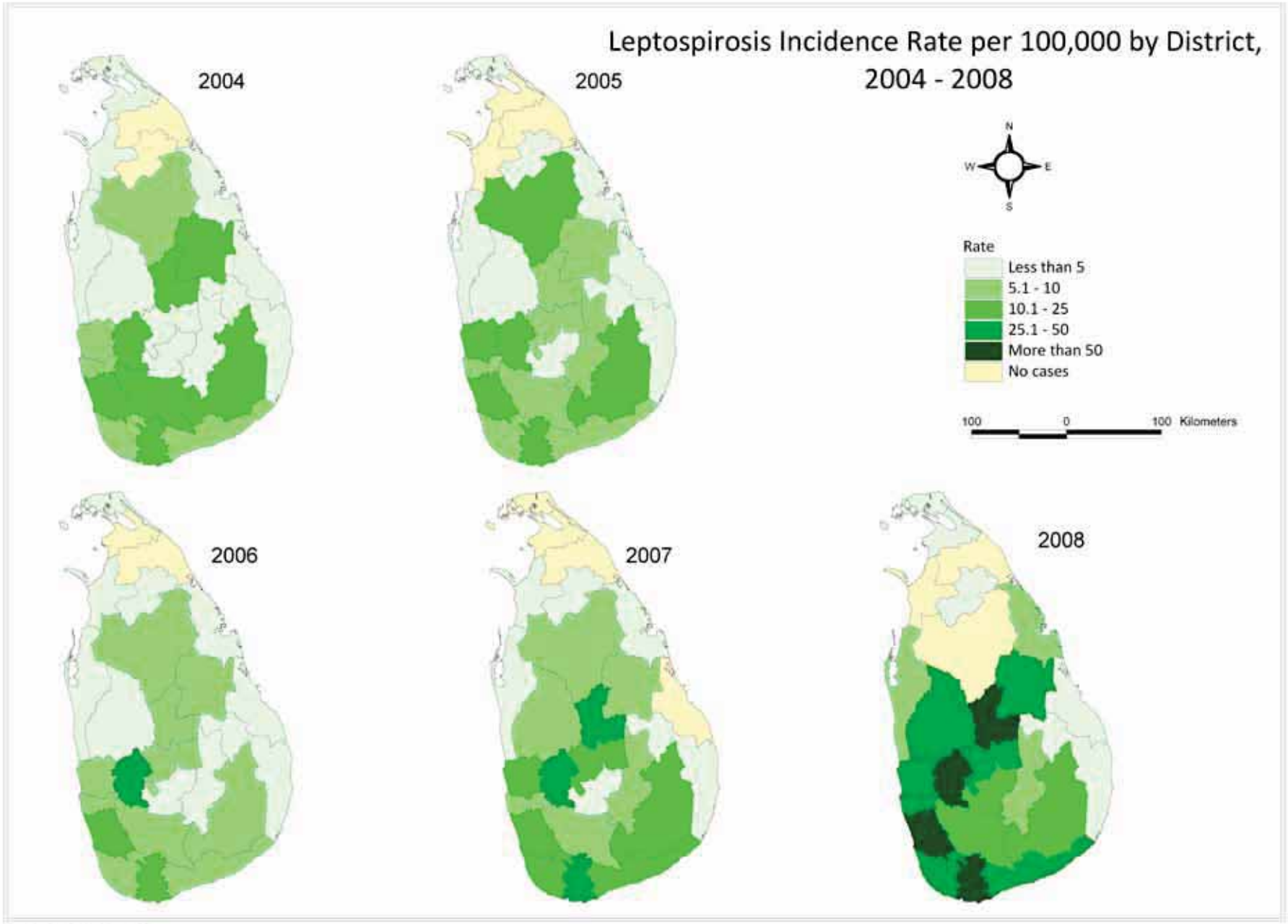

Vulnerability to Leptospirosis
N
Type of Vulnerability
Minimal Vulnerability
Low Vulnerability
Moderate Vulnerability
High Vulnerability
District boundary
Jaffna
Kilinochchi
Mulattivu
Vavuniya
Mannar
Anuradhapura
Trincomalee
Puttalam
Polonnaruwa
Batticaloa
Kurunegala
Matale
Kandy
Kegalle
Gampaha
Ampara
Nuwara Eliya
Badulla
Colombo
Moneragala
Kalutara
Rathnapura
Galle
Hambantota
Matara
Developed by
ADB TA 7326-SRI
50 0 50 Kilometers

Vulnerability to Leptospirosis

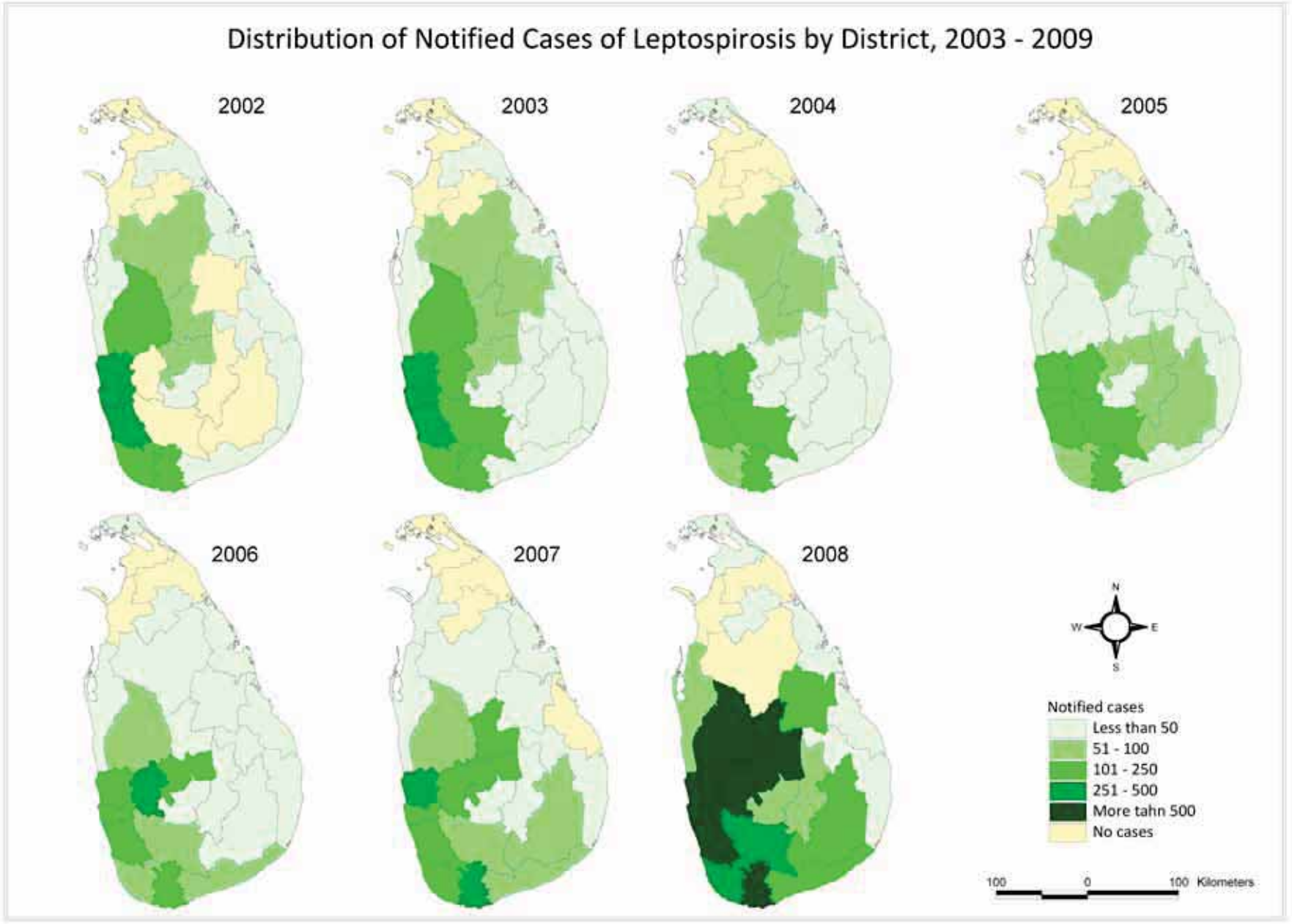
High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	Physical Characteristics							Demographics						
		Area (Sq. km)[i]	% Forest Land[l]	Total Extent of Agri. (Acers)[d]	No. of House-holds[b]	No. of Occupied Housing Units[b]	Total Population 2010 ('000)[i]	Population Density (Per Sq. km)-2010[a]	Urban[b]	Rural[b]	Estate[b]	# Completed Secondary Education[b]	% Completed Secondary Education[a]	Pop. Below Poverty Line	% in Poverty (HCI)[c]
1	Matale	1993	40.50	122391	110886	108566	497	249	36103	383468	21757	99867	25.23	89	18.90
2	Kegalle	1693	9.50	149476	195853	193578	818	483	17139	712914	55471	209434	29.71	175	21.00
3	Matara	1283	16.00	156547	177613	174712	839	654	64361	676499	20510	191971	28.00	119	14.70
4	Moneragala	5639	40.50	225218	96598	95966	440	78	0	388226	9149	66552	18.81	150	33.20
5	Kalutara	1598	13.00	141805	250939	245784	1135	710	113188	915477	37574	314334	33.03	149	13.00
6	Hambantota	2609	20.50	202304	128008	126362	571	219	21571	503412	1431	110566	23.37	73	12.70
7	Ratnapura	3275	20.00	243003	245743	242882	1125	344	58245	855178	102384	214927	23.43	292	26.60
8	Polonnaruwa	3293	38.00	163800	91718	90999	410	125	0	358679	305	67828	21.23	50	12.70
9	Galle	1652	13.00	167401	233027	229521	1084	656	109921	863309	17257	263578	29.65	146	13.70
10	Badulla	2861	19.00	156800	189925	185268	886	310	51536	567178	161269	160203	23.36	197	23.70
11	Puttalam	3072	25.00	159647	176544	174737	779	254	65294	642210	2173	133288	21.39	104	13.10
12	Nuwara Eliya	1741	24.50	60274	169540	164886	761	437	43073	283659	376878	108874	17.84	254	33.80
13	Kurunegala	4816	5.00	534464	380213	376352	1563	325	34691	1418882	6642	383985	29.12	238	15.40
14	Kandy	1940	17.00	150007	299870	291454	1431	738	155987	1030172	92869	368009	32.17	230	17.00
15	Ampara	4415	37.50	172001	137741	132371	644	146	112536	480461	0	111701	21.58	64	10.90
16	Gampaha	1387	0.30	143495	487184	475847	2177	1570	300933	1762028	723	714378	38.46	196	8.70
17	Anuradhapura	7179	35.00	364816	189699	186697	830	116	53151	691573	969	156644	23.61	118	14.90
18	Colombo	699	2.80	41513	493085	473045	2553	3652	1229572	1014388	7314	888246	44.28	125	5.40

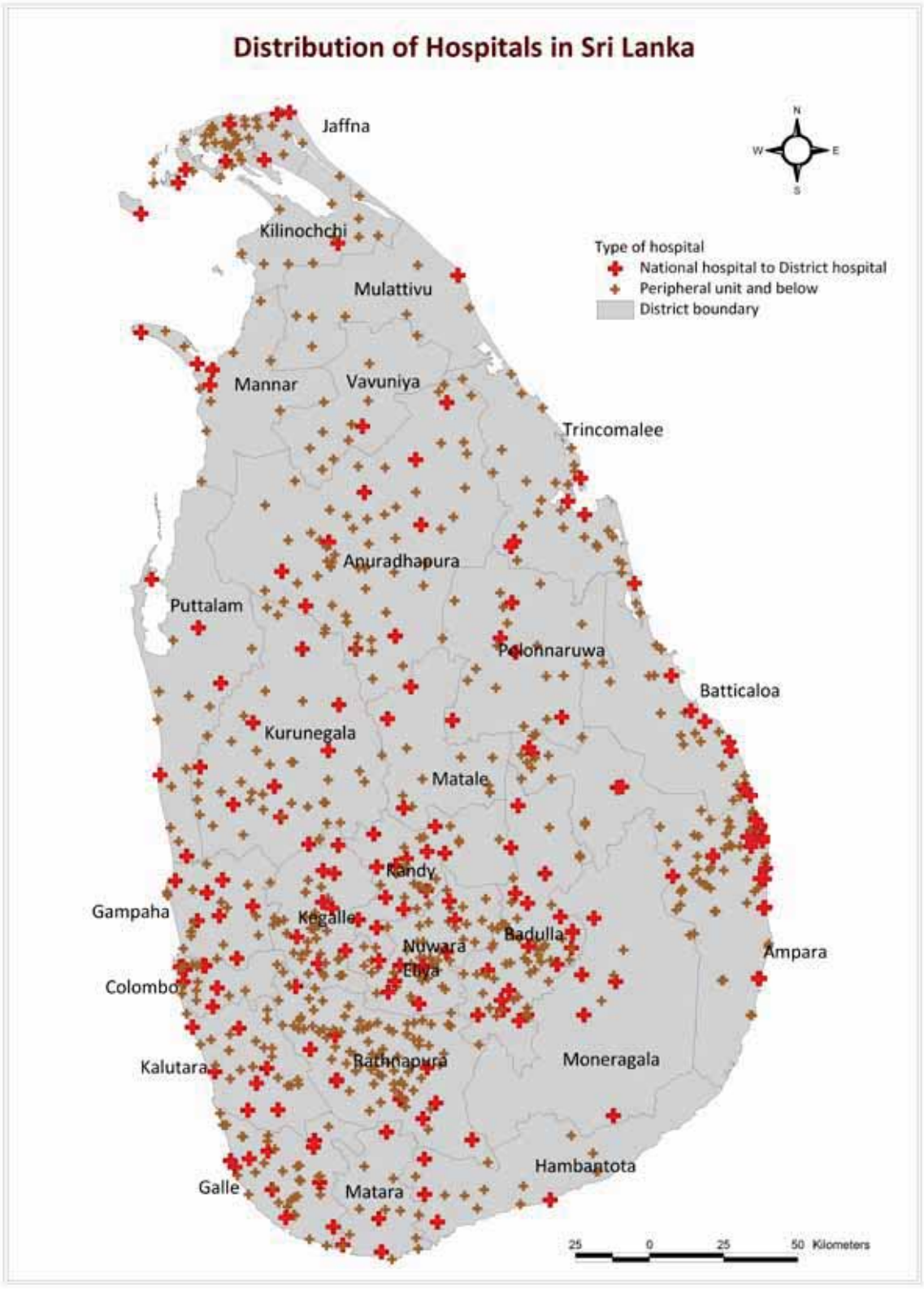
Sector Specific Data			District Name	Rank
# of Hospitals [m and a]	# of Hospital Beds[j]	Average Leptospirosis Incidence Rate (2004-2008) [k and a]		
36	1522	49.13	Matale	1
41	2229	37.25	Kegalle	2
37	2259	31.30	Matara	3
28	1350	16.04	Moneragala	4
28	2658	24.18	Kalutara	5
32	1644	12.49	Hambantota	6
50	3136	11.78	Ratnapura	7
46	2746	12.64	Polonnaruwa	8
48	3511	16.71	Galle	9
52	3202	6.29	Badulla	10
40	1676	4.12	Puttalam	11
45	1804	3.59	Nuwara Eliya	12
98	5296	12.34	Kurunegala	13
84	6300	13.21	Kandy	14
51	2536	2.76	Ampara	15
64	5661	15.95	Gampaha	16
122	6676	5.68	Anuradhapura	17
51	11175	13.54	Colombo	18



Developed by ADB TA 7326-SRI



Developed by ADB TA 7326-SRI



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Biodiversity and Ecosystem Services

Biodiversity underlies the goods and services that are crucial for human survival and wellbeing due to a host of vital supporting, regulating, provisioning and cultural ecosystem services. Biodiversity is determined by many factors, including mean climate and climate variability, as well as disturbance regimes caused by changes of tectonic, climatic, biological, anthropogenic and other origin. It is now generally accepted that global biodiversity will be significantly affected by climate change, although its precise impacts are still unsure.

Components of biodiversity provide us with freshwater for domestic and industrial uses, and underpin the socio-economically vital areas of agriculture and livestock production, fishery, forestry, tourism, traditional medicine and several important manufacturing industries. Therefore, the value of conserving the country's biodiversity has been recognized and incorporated into national planning.

While the current and probable future impacts of climate change on agro-biodiversity are being addressed, the possible impacts of climate change on wild biodiversity are mostly speculative. Nonetheless, the socio-economic and ecological implications of biodiversity loss in Sri Lanka will be considerable and wide ranging, because of probable changes in forests and other terrestrial systems, inland wetlands and coastal and marine systems and the species they contain. These changes will have inevitable impacts on national food security; rural livelihoods, nutrition and health; and overall economic development, particularly in the fields of tourism and external trade.

Although all impacts of climate change on biodiversity may not be preventable, it is recognized that genetically diverse populations of species, and species rich ecosystems, have much greater potential to adapt to climate change. Conservation of biodiversity and maintenance of ecosystem structure and function may, therefore, be one of the most practical climate change adaptation strategies that Sri Lanka can adopt to conserve the country's natural heritage, and to ensure an uninterrupted flow of ecosystem services and bio-resources that are essential for national development. The various issues associated with climate change such as changing rainfall patters, increased temperatures, drought, flood and landslides on the different ecosystems both terrestrial and aquatic ecosystems are discussed in detail in the *SVP on Biodiversity and Ecosystem Services*.

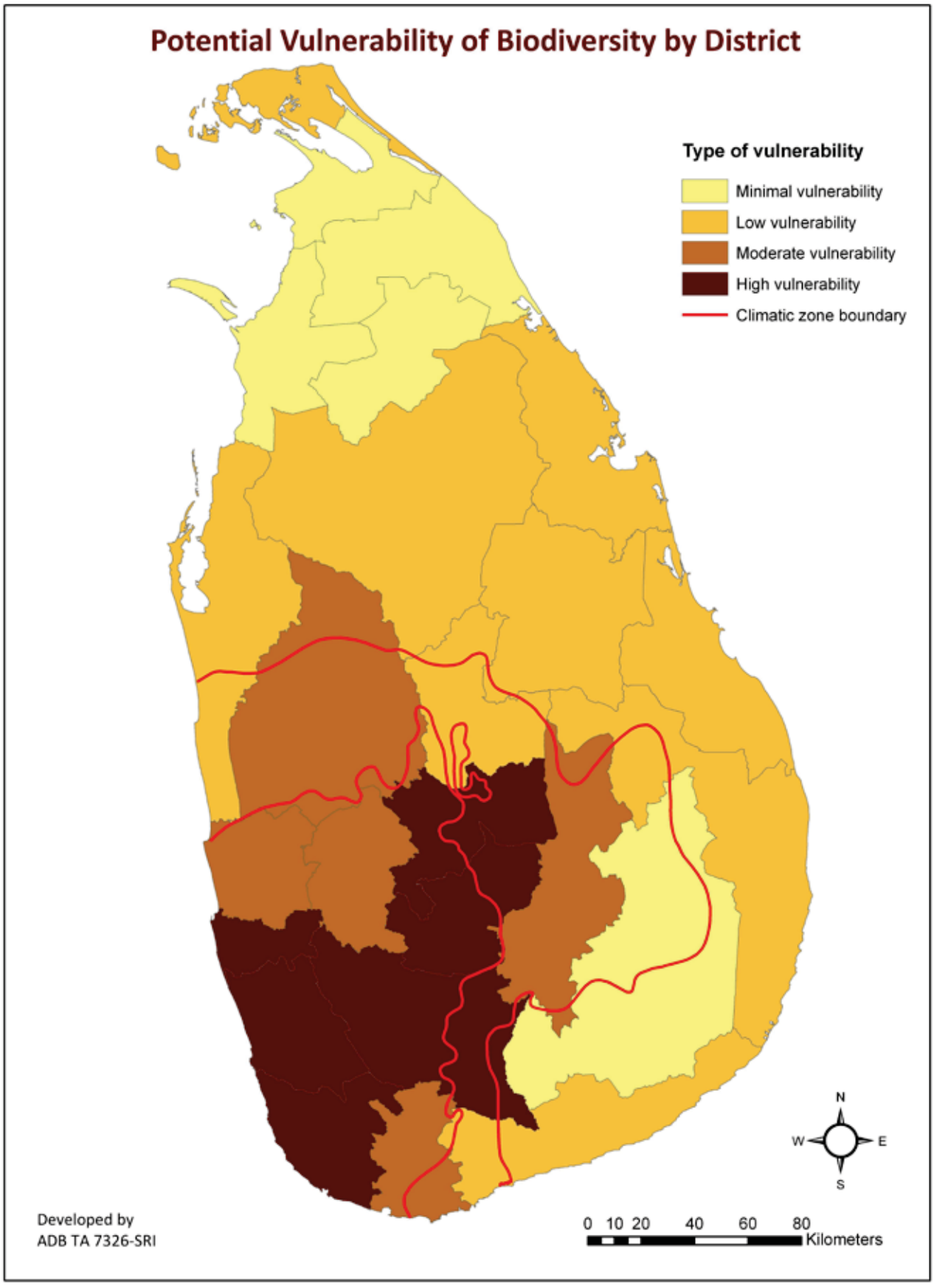
Potential Vulnerability of Biodiversity by District

The indicators used for the Sensitivity Index and the Adaptive Capacity Index are:

The Sensitivity Index	The Adaptive Capacity Index
A composite of data (at DSD level) on: • number of threatened butterfly species per district (IUCN and MOENR, 2007)27 • number of threatened vertebrate species per district27 (IUCN and MOENR, 2007) • number of threatened flowering plants per district (IUCN and MOENR, 2007)27 (These three groups have been taken as representative groups that could be expected to be affected by climate change)	A composite of data (at DSD level) on: • Forest cover (ha) per district (2007 census data) • Human population density per district (2007 census data) • Home garden size per district (calculated using the 1:50,000 land use map to obtain home garden area per district, and the number of housing units per district from the 2001 Census)

Some of the key findings include:

- Six districts appear to be highly vulnerable in terms of biodiversity. These districts are Galle, Kalutara, Colombo, Ratnapura, Nuwara Eliya and Kandy. They have:
  - a total human population of 7,306,445, of whom nearly 16.4% are below the poverty lin.e
  - 2,181 km^2 of forests.
  - 1,583 (57.8% of all currently listed) nationally threatened species.
  - an average home garden size of 52.6 perches per household unit.
  - Most of the biodiversity rich lowland and montane wet zone forests.
- Historically, Ratnapura, Kalutara, Galle, Colombo districts are also highly vulnerable to floods and Nuwara Eliya and Rathnapura Districts are highly vulnerable to landslides.
- A further 5 Districts (Matara, Badulla, Gampaha, Kegalle and Kurunegala are in the moderately vulnerable category. They have:
  - a total population of 5,850,776.
  - a total forest cover of 248 km^2.
  - 562 (18.03%) of all currently listed nationally threatened species.

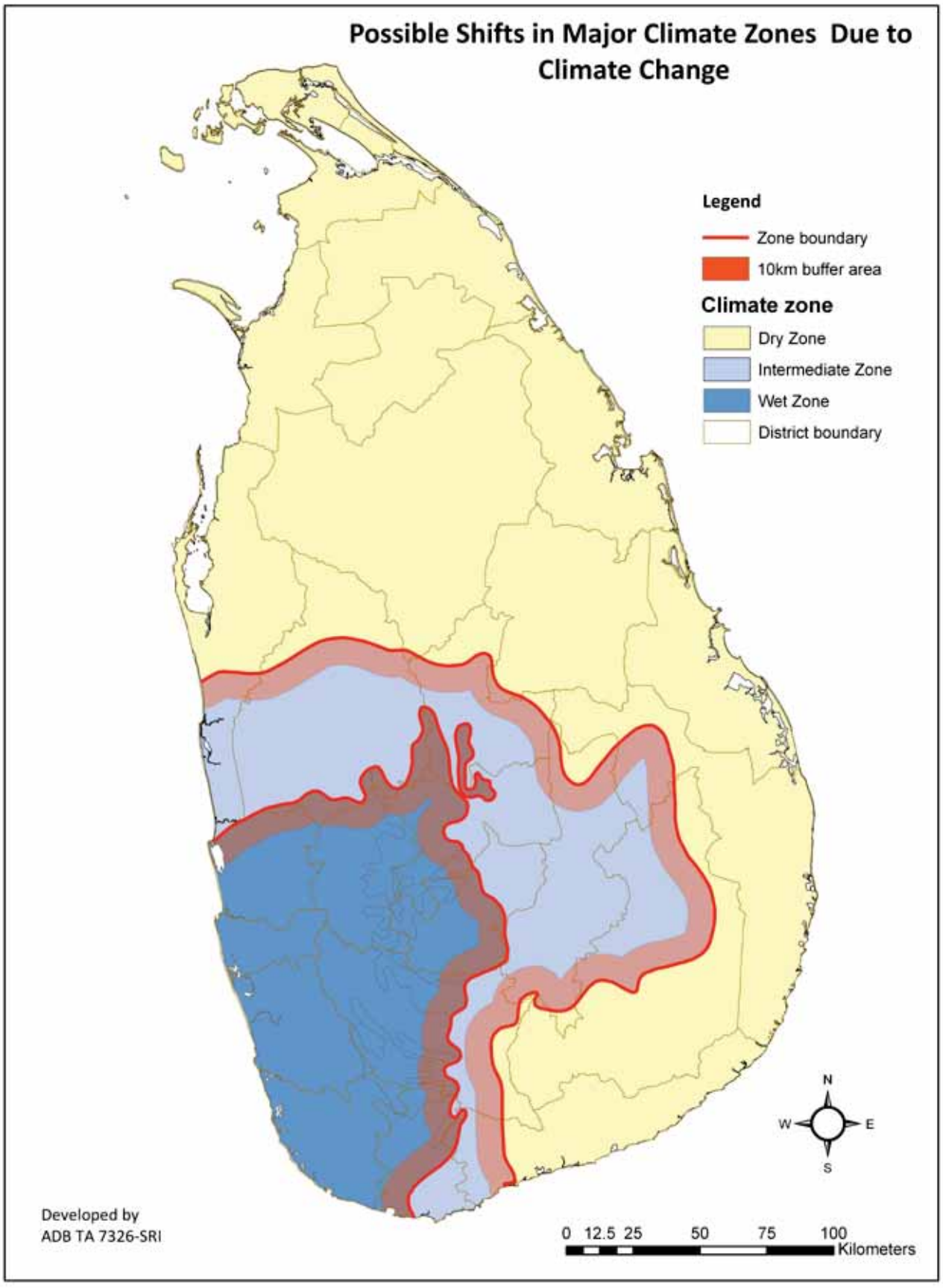

Potential Vulnerability of Biodiversity by District
Type of vulnerability
Minimal vulnerability
Low vulnerability
Moderate vulnerability
High vulnerability
Climatic zone boundary
N
W
E
S
Developed by
ADB TA 7326-SRI
0 10 20 40 60 80
Kilometers

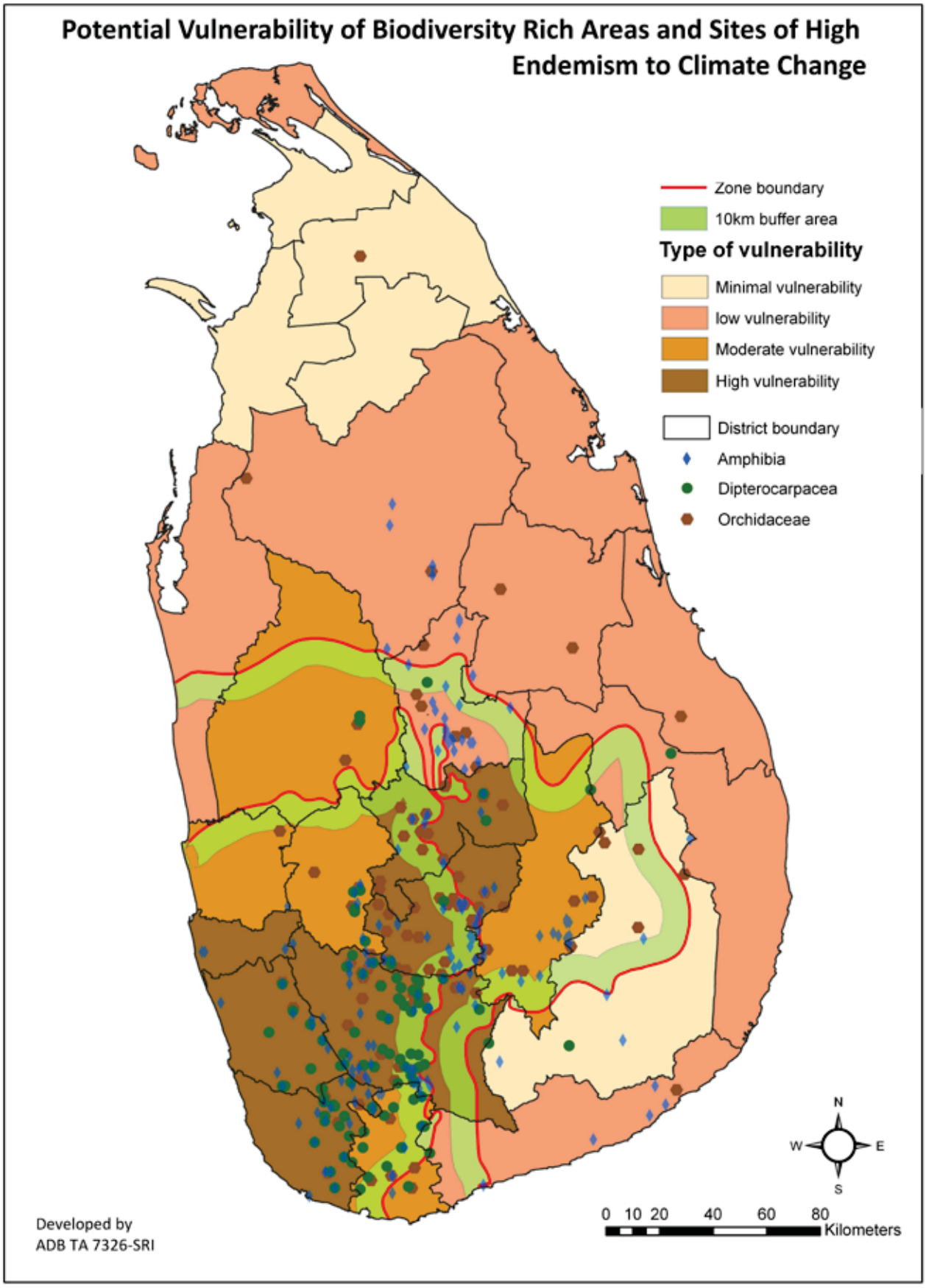
Biodiversity Sector Vulnerability

High Vulnerability | Moderate Vulnerability | Low Vulnerability | Minimal Vulnerability

Rank	District Name	Physical Characteristics						Demographics						
		Area (Sq. km)[i]	Total Population 2010 ('000)[i]	Total Population 2001[b]	Population Density (Per Sq. km) 2010[a]	No of Households[b]	No of Occupied Housing Unit[b]	Urban Population[b]	Rural Population[b]	Estate Population[b]	# Completed Secondary Education[b]	% Completed Secondary Education[a]	Pop. Below Poverty Line	% in Poverty (HCI)[c]
1	Ratnapura	3275	1125	1015807	344	245743	242882	58245	855178	102384	214927	23.43	292	26.60
2	Kandy	1940	1431	1279028	738	299870	291454	155987	1030172	92869	368009	32.17	230	17.00
3	Colombo	699	2553	2251274	3652	493085	473045	1229572	1014388	7314	888246	44.28	125	5.40
4	Galle	1652	1084	990487	656	233027	229521	109921	863309	17257	263578	29.65	146	13.70
5	Kalutara	1598	1135	1066239	710	250939	245784	113188	915477	37574	314334	33.03	149	13.00
6	Nuwara Eliya	1741	761	703610	437	169540	164886	43073	283659	376878	108874	17.84	254	33.80
7	Gampaha	1387	2177	2063684	1570	487184	475847	300933	1762028	723	714378	38.46	196	8.70
8	Kegalle	1693	818	785524	483	195853	193578	17139	712914	55471	209434	29.71	175	21.00
9	Badulla	2861	886	779983	310	189925	185268	51536	567178	161269	160203	23.36	197	23.70
10	Matara	1283	839	761370	654	177613	174712	64361	676499	20510	191971	28.00	119	14.70
11	Kurunegala	4816	1563	1460215	325	380213	376352	34691	1418882	6642	383985	29.12	238	15.40
12	Puttalam	3072	779	709677	254	176544	174737	65294	642210	2173	133288	21.39	104	13.10
13	Jaffna	1025	611		596	0								
14	Hambantota	2609	571	526414	219	128008	126362	21571	503412	1431	110566	23.37	73	12.70
15	Matale	1993	497	441328	249	110886	108566	36103	383468	21757	99867	25.23	89	18.90
16	Batticaloa	2854	543		190									
17	Anuradhapura	7179	830	745693	116	189699	186697	53151	691573	969	156644	23.61	118	14.90
18	Ampara	4415	644	592997	146	137741	132371	112536	480461	0	111701	21.58	64	10.90
19	Polonnaruwa	3293	410	358984	125	91718	90999	0	358679	305	67828	21.23	50	12.70
20	Trincomalee	2727	374		137									
21	Moneragala	5639	440	397375	78	96598	95966	0	388226	9149	66552	18.81	150	33.20
22	Mannar	1996	104		52									
23	Vavuniya	1967	174		88									
24	Mulattivu	2617	148		57									

Sector Specific Data					District Name	Rank
% Forest Land[1]	Recorded Threatened Vertebrates[1]	Recorded Threatened Flora[1]	Recorded Threatened Butterflies[1]	Average Home Garden Size (perch)[a]		
20.0	116	264	38	76	Ratnapura	1
17.0	90	310	10	68	Kandy	2
2.8	28	22	3	19	Colombo	3
13.0	76	187	6	62	Galle	4
13.0	59	126	14	44	Kalutara	5
24.5	79	150	5	47	Nuwara Eliya	6
0.3	26	10	1	37	Gampaha	7
9.5	51	98	3	69	Kegalle	8
19.0	67	90	7	100	Badulla	9
16.0	37	101	3	87	Matara	10
5.0	21	44	3	89	Kurunegala	11
25.0	15	21	8	54	Puttalam	12
1.1	8	7	0	90	Jaffna	13
20.5	38	32	5	125	Hambantota	14
40.5	57	71	3	131	Matale	15
21.0	2	9	0	44	Batticaloa	16
35.0	25	68	1	123	Anuradhapura	17
37.5	18	15	0	110	Ampara	18
38.0	15	26	0	117	Polonnaruwa	19
48.0	11	10	1	76	Trincomalee	20
40.5	35	56	5	234	Moneragala	21
60.0	6	5	4	114	Mannar	22
51.0	9	1	0	166	Vavuniya	23
60.0	8	0	0	131	Mulattivu	24

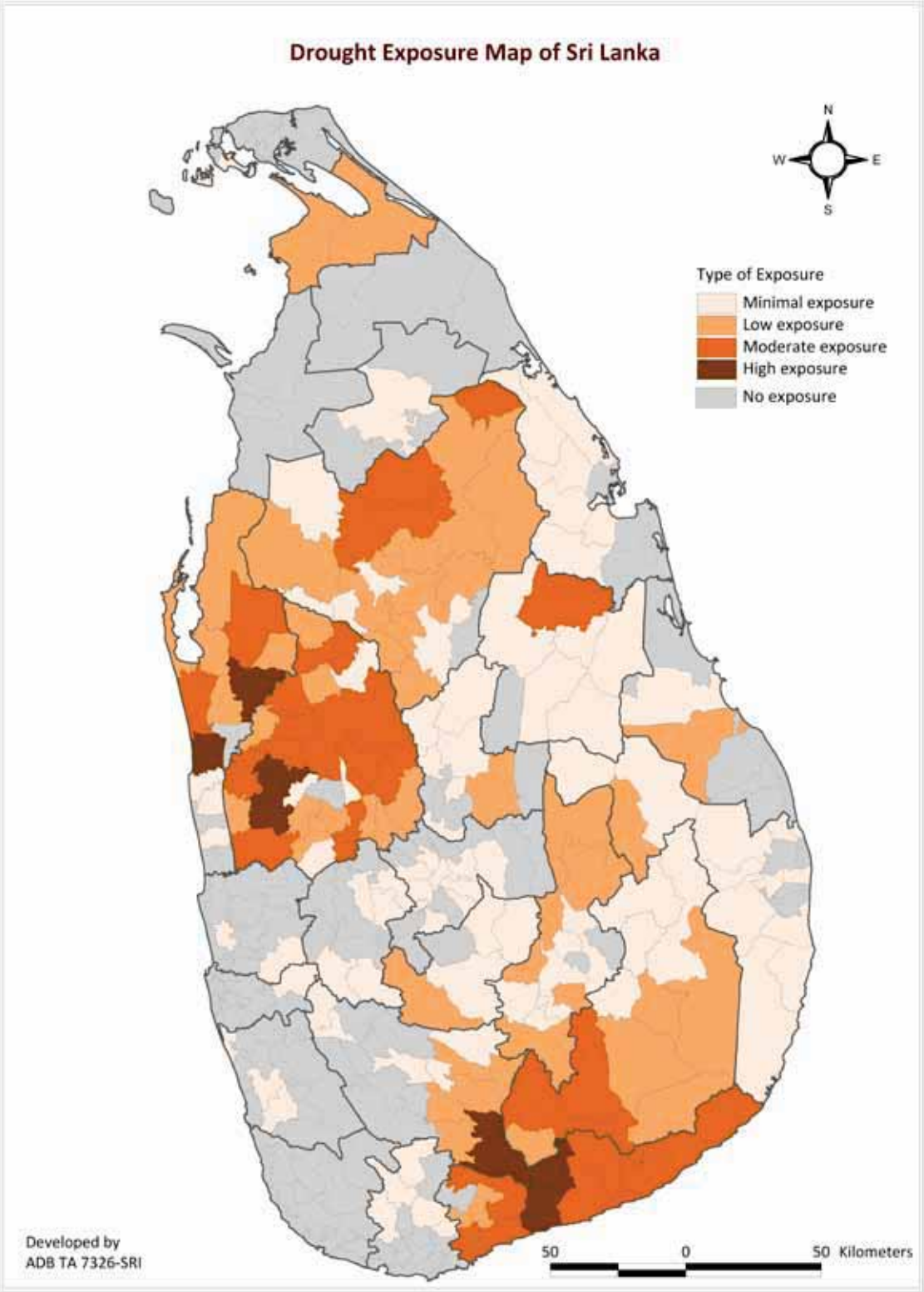

Possible Shifts in Major Climate Zones Due to Climate Change
Legend
Zone boundary
10km buffer area
Climate zone
Dry Zone
Intermediate Zone
Wet Zone
District boundary
N
W
E
S
Developed by
ADB TA 7326-SRI
0 12.5 25 50 75 100
Kilometers

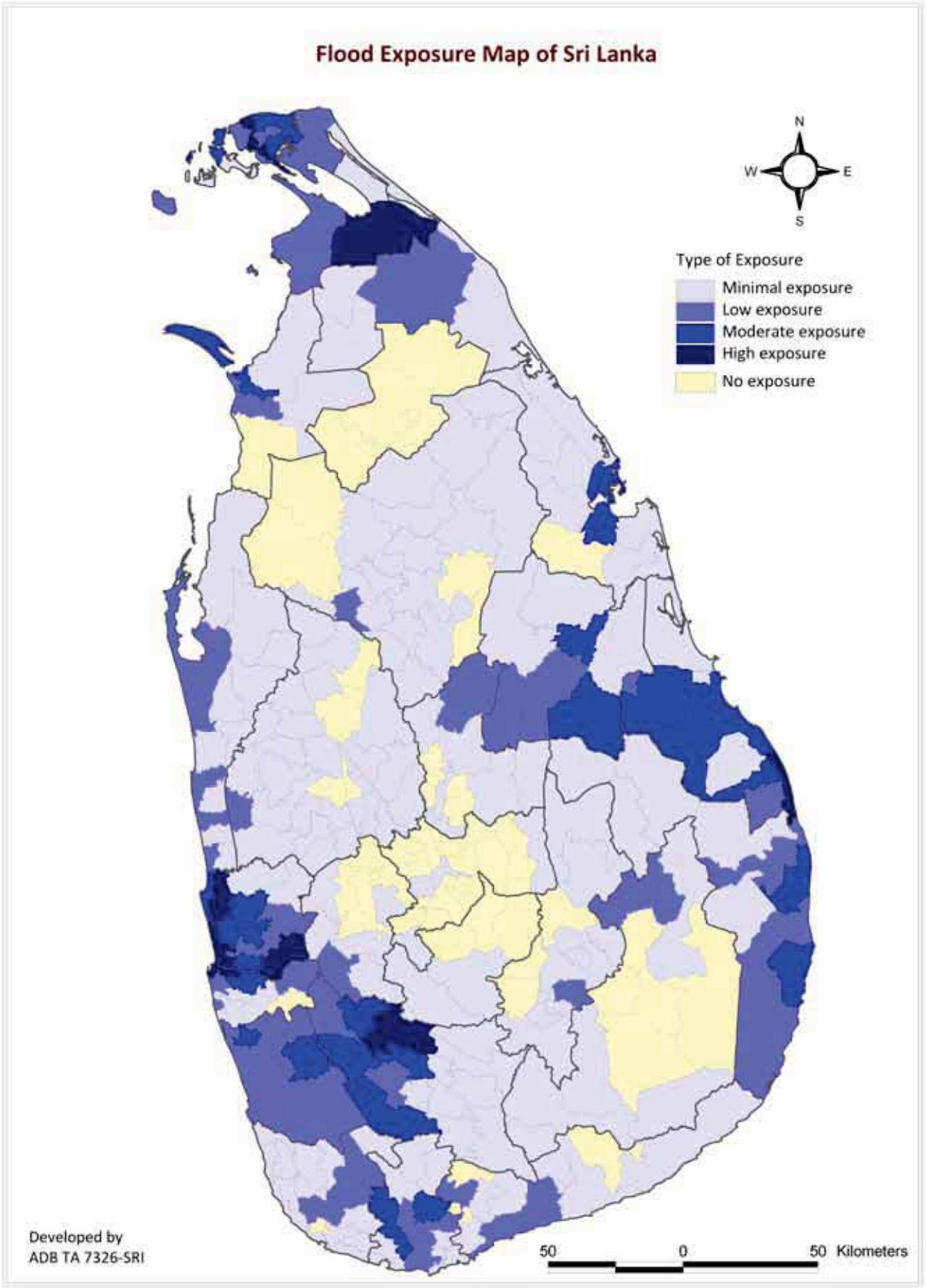

Potential Vulnerability of Biodiversity Rich Areas and Sites of High Endemism to Climate Change
Zone boundary
10km buffer area
Type of vulnerability
Minimal vulnerability
low vulnerability
Moderate vulnerability
High vulnerability
District boundary
Amphibia
Dipterocarpacea
Orchidaceae
N
W
E
S
0 10 20 40 60 80
Kilometers
Developed by
ADB TA 7326-SRI

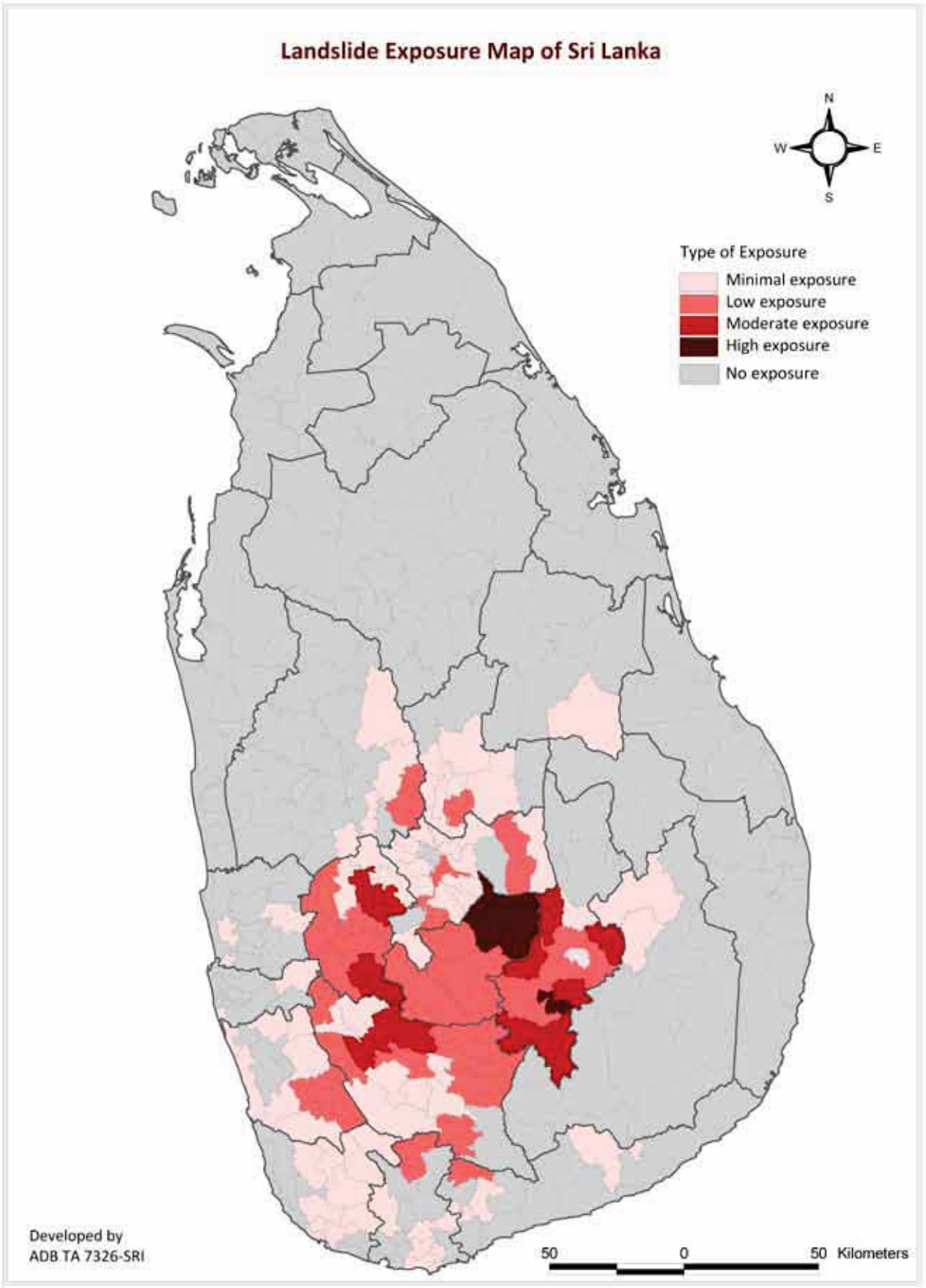
Appendices

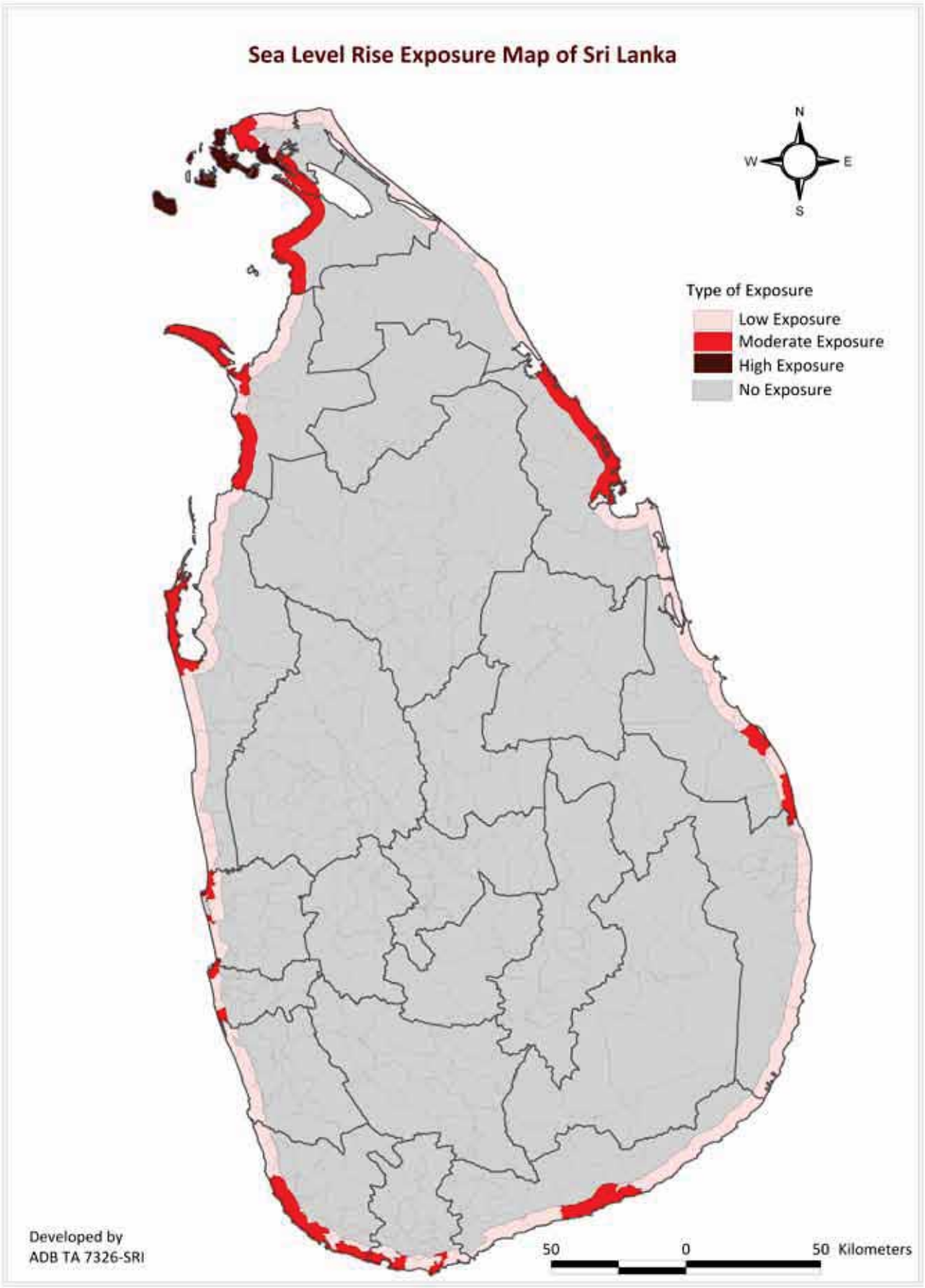
APPENDIX A

Exposure Maps




Flood Exposure Map of Sri Lanka
N
W
E
S
Type of Exposure
Minimal exposure
Low exposure
Moderate exposure
High exposure
No exposure
Developed by
ADB TA 7326-SRI
50
0
50 Kilometers


Landslide Exposure Map of Sri Lanka
N
W
E
S
Type of Exposure
Minimal exposure
Low exposure
Moderate exposure
High exposure
No exposure
Developed by
ADB TA 7326-SRI
50
0
50 Kilometers


Sea Level Rise Exposure Map of Sri Lanka
N
W
E
S
Type of Exposure
Low Exposure
Moderate Exposure
High Exposure
No Exposure
Developed by
ADB TA 7326-SRI
50
0
50 Kilometers

APPENDIX B

District Data Tables

District Name	Physical Characteristics					Demographics				
	Area (Sq. km)[a]	Estimated Mid-year Population (2010)[b] ('000)	Total population (2001)[c]	Population Density (2010), (per Sq. km)[d]	No. of House-holds[c]	Urban Popula-tion[c]	Rural Popula-tion[c]	Estate Popula-tion[c]	% in Poverty[e]	% Completed Secondary Education
Ampara	4415	644	592997	146	137741	480461	480461	0	10.9	21.58
Anuradhapura	7179	830	745693	116	189699	691573	691573	969	14.9	23.61
Badulla	2861	886	779983	310	189925	567178	567178	161269	23.7	23.36
Batticaloa	2854	543		190					10.7	
Colombo	699	2553	2251274	3652	493085	1014388	1014388	7314	5.4	44.28
Galle	1652	1084	990487	656	233027	863309	863309	17257	13.7	29.65
Gampaha	1387	2177	2063684	1570	487184	1762028	1762028	723	8.7	38.46
Hambantota	2609	571	526414	219	128008	503412	503412	1431	12.7	23.37
Jaffna	1025	611		596						
Kalutara	1598	1135	1066239	710	250939	915477	915477	37574	13	33.03
Kandy	1940	1431	1279028	738	299870	1030172	1030172	92869	17	32.17
Kegalle	1693	818	785524	483	195853	712914	712914	55471	21.1	29.71
Kilinochchi	1279	156		122						
Kurunegala	4816	1563	1460215	325	380213	1418882	1418882	6642	15.4	29.12
Mannar	1996	104		52						
Matale	1993	497	441328	249	110886	383468	383468	21757	18.9	25.23
Matara	1283	839	761370	654	177613	676499	676499	20510	14.7	28.00
Moneragala	5639	440	397375	78	96598	388226	388226	9149	33.2	18.81
Mulattivu	2617	148		57						
Nuwara Eliya	1741	761	703610	437	169540	283659	283659	376878	33.8	17.84
Polonnaruwa	3293	410	358984	125	91718	358679	358679	305	12.7	21.23
Puttalam	3072	779	709677	254	176544	642210	642210	2173	13.1	21.39
Ratnapura	3275	1125	1015807	344	245743	855178	855178	102384	26.6	23.43
Trincomalee	2727	374		137						
Vavuniya	1967	174		88						

Housing Characteristics					Transport							
									Roads within 500 m from coastline			
Permanent[c]	Semi-Permanent[c]	Improvised[c]	Not Classified[c]	Total Housing Units[c]	Main Roads [f & d]	Secondary Roads [f & d]	Rail Roads [f & d]	Track and Foot Path (km) [f & d]	Main Roads[d]	Secondary Roads[d]	Rail Roads[d]	Track and Foot Path (km)[d]
87347	39806	3917	1301	132371	374.5900	427.1100	0.0000	3568.5800	10.9940	46.5880		65.4810
99710	84703	853	1431	186697	647.3000	792.9600	136.6900	7641.2500				
120557	62426	194	2091	185268	533.2800	818.7700	67.7900	3698.3000				
					202.7600	223.5800	54.3400	2811.8000	13.0780	9.9270		100.4300
408473	54234	1293	9045	473045	203.1700	1280.6500	110.4200	691.5700	26.5310	94.4610	30.1380	1.9600
166119	60304	1722	1376	229521	429.8000	735.7000	75.6000	2332.0900	77.1200	41.8330	55.5310	50.6730
380985	83351	5251	6260	475847	638.3900	1337.5700	84.1400	2005.9900	18.5420	37.6600		15.3010
75720	49367	590	685	126362	262.3700	952.2300	0.0000	2881.1700	16.4270	27.2300		48.3550
					282.9200	741.7600	50.9600	2639.1600	88.3030	168.3900	3.4790	562.5610
193973	48347	1094	2370	245784	286.1600	936.0600	34.4900	2082.9900	21.5080	29.6710	26.1790	35.7780
211576	76634	430	2814	291454	563.5700	1096.0700	78.0200	2539.9500				
133244	57960	980	1394	193578	390.6100	718.9000	22.6100	2114.6700				
					122.2400	139.7700	43.0500	2132.0200	0.7450	2.7750		102.1390
241602	127978	4493	2279	376352	760.1900	1491.6000	147.2100	7245.9200				
					112.2700	243.0100	67.2100	1298.3000	19.3000	20.5170	7.3450	87.7110
61990	45588	461	527	108566	285.8500	431.5800	10.5200	2078.9400				
126683	46118	1096	815	174712	336.2200	528.2700	20.1200	1327.0400	35.2670	25.7630	7.4230	33.3340
46691	48327	380	568	95966	404.7200	370.2300	0.0000	2834.2600				
					111.1300	128.4100	24.2200	2521.3900		9.8600		81.1050
106766	54618	300	3202	164886	529.0200	451.3000	66.3100	3765.5700				
54193	35566	431	809	90999	190.5900	291.7200	108.8300	2615.3100				
107965	55263	9908	1601	174737	393.1400	583.8700	122.4000	3521.2300	31.2820	53.8050	2.9610	151.9050
148266	92413	406	1797	242882	514.3000	830.8000	0.0000	3419.6100				
					157.2800	221.4100	46.7200	3190.3200	28.0610	84.8980	8.4350	302.5630
					163.5600	137.8900	81.9000	1886.9100				

Tourism					Source of Drinking Water (No. of Households)					
livelihoods Dependent on Tourism[c]	% of Livelihoods Dependent on Tourism[d]	No of Hotel Rooms g and d	No. Guest House Rooms g and d	Total Rooms[d]	Wells[c]	Tubewells[c]	Tap[c]	Other[c]	Wells and Taps within Premises[c]	Wells and Taps Outside Premises[c]
1617	1.0	23	85	108	114229	2898	13439	4359	72229	42542
3258	1.1	486	146	632	138729	26630	18137	3538	53761	77174
2914	1.0	168	311	479	76362	6174	71667	31737	55509	71709
			37	37						
23823	2.8	3702	888	4590	167675	3930	307322	2876	328951	138071
7587	2.4	2186	608	2794	172707	6036	44334	7336	108134	75113
15483	2.0	1840	705	2545	342265	25489	108422	2432	307287	112656
2095	1.3	450	211	661	70828	7925	42704	5342	43118	55715
			112	112						
8909	2.5	2012	536	2548	186123	7272	46495	7223	123652	79848
9879	2.4	1358	387	1745	132393	23512	115022	23791	102864	117981
4346	1.7	74	125	199	130458	909	35637	26140	65512	68918
				0						
5946	1.2	45	242	287	342354	13802	14795	5422	168354	140958
				0						
3210	2.1	559	168	727	58853	18125	24830	8072	29945	41179
2748	1.1	279	295	574	107534	1762	49703	16474	86229	49511
1345	0.9	145	125	270	59203	7486	13472	15402	24274	29518
				0						
3704	1.3	448	156	604	38713	4622	85585	35258	42828	67628
1518	1.1	343	124	467	64893	10235	10000	5236	30362	28444
3387	1.5	176	138	314	124003	23831	19899	5756	75736	59758
3803	1.0	117	135	252	105930	3868	68415	63798	64455	82386
		238	82	320						
			24	24						

Irrigation Water							Total Agricultural Operators[i]	Land Utilization within Agricultural Holdings					
Area of Tanks (Sq. km)[d]	No of Tanks[d]	Rainfed Paddy Area (Acres)[h]	Irrig. paddy Area (Acres)[h]	Agri. and Forestry sector Employ-ment[c]	% Agri. and Forestry Sector employ-ment[d]	HH with Agri. as Primary Source of Income [i and d]		Total Extent of Holdings (Acres)[i]	Aswed-dumized Paddy (Acres)[i]	Temp. Crops other than Aswed-dumized Paddy (Acres)[i]	Permanent Crops (Acres)[i]	Forest Land (Acres)[i]	Other Land (Acres)[i]
108.18	387	9802	62536	65523	40.4	39267	54416	172001	115996	17221	23625	7056	8103
547.00	3375	4189	66665	147745	51.7	91595	147664	364816	189614	49826	71360	23938	30078
24.99	142	3266	21349	164492	55.9	60872	89270	156800	50386	33167	48247	12706	12294
71.72	246	26401	20046			15257	20645	74335	59215	7098	5448	506	2068
0.30	6	4144	1526	17958	2.1	7300	27003	41513	9944	1782	21920	1447	6420
		15559	196	93428	29.3	55371	103562	167401	37256	2309	162462	8341	-42967
0.52	26	10682	3085	31393	4.2	22112	87212	143495	26075	2856	97830	2728	14006
89.23	855	1443	25043	65905	40.0	54060	86271	202304	67007	29522	80779	12024	12972
10.47	144	709	0			16041	25011	31895	13405	6350	9236	672	2232
0.66	7	12939	2147	54873	15.4	28294	75235	141805	34850	3669	81230	8562	13494
2.20	52	4907	10761	89081	21.9	41793	104008	150007	36356	6737	73479	8171	25264
0.05	10	6734	2254	64066	24.7	30658	82667	149476	18778	4662	106516	6778	12742
27.60	269	6185	7735			8059	13385	38472	19282	6673	9382	811	2324
175.07	4057	30186	47504	170200	33.1	112743	245424	534464	154245	32351	278166	35600	34102
113.66	463	24	9958			4180	5136	20967	14387	1559	3305	505	1211
25.59	249	3971	13726	61436	39.3	33591	63880	122391	37603	14608	51831	9127	9222
2.91	19	10163	7308	85197	35.2	46680	89908	156547	36232	2175	98915	5635	13590
96.75	1055	5228	13560	87643	60.6	56684	80368	225218	38243	60680	84195	21094	21006
118.21	591	2902	7582			8154	11679	39230	17874	10593	8088	528	2147
0.60	39	174	6275	173404	61.6	27694	46105	60274	13893	13373	23147	4600	5261
130.87	315	1234	55849	68804	50.2	40985	57842	163800	112619	5298	24825	8036	13022
89.94	959	1842	16870	41485	18.1	27116	67064	159647	32563	11135	85337	18146	12466
6.30	26	4844	10570	164996	44.0	79804	133242	243003	33672	15245	151970	22290	19826
118.33	682	7495	22413			13387	18650	50797	33863	3927	7800	2152	3055
113.00	921	1402	14917			7382	12694	32824	14682	9918	3434	1844	2946

Paddy Statistics Related to Sea Rise Exposure		Plantation Sector			Inland Fishing				
Paddy Areas Below 2m Within 5km from Coast-line (Acres)[d]	Paddy Area Within 500m from Coastline (Acres)[d]	Tea (Acres)[i]	Rubber (Acres)[i]	Coconut (Acres)[i]	# Employed in Inland Fishing[d]	Inland Fishing as % of Total Jobs[d]	Lagoons Area (Acres)[d]	Tanks Area (Acres)[d]	Lakes and Reservoirs Area (Acres)[d]
34	38449	0	0	12310	2104	1.30	15585	23461	19192
	0	0	0	34497	1576	0.55	0	124102	0
	0	75709	1068	6708	290	0.10	0	6465	10061
273	18190	0	0	8739			26076	17536	662
16	2587	380	17450	18024	819	0.10	0	74	615
3446	15121	63330	16497	30999	1307	0.41	62	0	3326
87	5745	30	7605	106572	3691	0.49	8409	161	0
40	17865	1088	175	51234	1470	0.89	4244	15464	58
1871	44747	0	0	8535			6237	2679	0
643	10300	17717	73764	27864	994	0.28	15	142	753
	0	55842	3040	19490	182	0.04	0	485	5255
	0	18922	87902	38080	78	0.03	0	10	0
809	27159	0	0	6114			21955	6290	0
52	0	101	7055	331057	772	0.15	0	45051	5216
392	21609	0	0	2249			5048	20007	0
988	0	12676	4626	25450	124	0.08	0	6255	1847
	10912	58573	9219	35578	1434	0.59	95	713	0
	0	2279	4608	26444	277	0.19	0	29109	5823
187	8458	0	0	6562			13887	23251	0
	0	124208	81	2577	88	0.03	0	90	7062
2	0	0	0	16408	1423	1.04	0	30054	361
616	11189	0	0	113896	4232	1.84	119077	19568	10338
	0	94767	54725	39461	203	0.05	0	7227	333
4961	45131	0	0	5209			2117	22305	442
	0	0	0	1921			0	19902	32

a - Statistical Abstract – 2009, Department of Census & Statistics http://www.statistics.gov.lk/abstract2009/chapters/Chap1/AB1-1.pdf

b - Estimated Mid-year Population by Sex and District - 2010, Department of Census and Statistics, http://www.statistics.gov.lk/PopHouSat/Mid%20Year%20Population/midyearsex%20&district.pdf

c - Census of Population and Housing -2001, Department of Census and Statistics

d - Calculated by the TA Team

e - Household Income and Expenditure Survey - 2006/07 Department of Census and Statistics, http://www.statistics.gov.lk/poverty/PovertyIndicators.pdf

f - 1:50,000 Topographic Maps – Department of Survey

g - Sri Lanka Tourism Development Authority

h - Asweddumized Extent of Paddy by Mode of Irrigation and DS Division 2005/06 Maha, http://www.statistics.gov.lk/agriculture/Paddy%20Statistics/PaddyStats.htm Department of Census and Statistics

i - Census of Agriculture, 2002, Department of Census & Statistics

j - Department of Coast Conservation

k - Ministry of Health

Marine Fishery					Livestock				Health				
No. of Landing Sites[j]	Employed Population Aged 10 Years and Over[c]	Fishery Sector Jobs[c]	# Employed in Marine Fishing[d]	% of Marine Fishing from Total Jobs[d]	No. of Cattle and Buffalo[i]	No. of Goats and Swine[i]	Total Heads of Poultry[i]	Livestock Land Holdings <= 1/4 Acre[i]	# of Hospitals[k]	# of Hospital Beds[k]	Average Dengue Incidence Rate (2004 – 2008) k and a	Average Dysentery Incidence Rate (2004 – 2008) k and a	Average Leptospirosis Incidence Rate (2004 – 2008) k and a
121	162322	5877	3773	3.62	9847	1889	4534	67778	51	2536	12.91	60.76	2.76
	285806	1576		0.55	13174	2614	9696	26351	122	6676	29.84	36.19	5.68
	294223	290		0.10	18211	2558	6628	38733	52	3202	13.31	85.64	6.29
					5030	4287	6692	78897	37	1489	12.87	33.94	0.82
26	855142	2434	1615	0.28	2117	626	2137	143495	51	11175	102.96	11.60	13.54
92	318680	3832	2525	1.20	3694	907	3936	85243	48	3511	16.13	16.99	16.71
105	756186	8662	4971	1.15	8710	4342	12334	245819	64	5661	75.79	13.16	15.95
44	164923	4937	3467	2.99	4273	543	2210	26309	32	1644	21.35	39.54	12.49
					14905	19876	9081	66526	44	2355	16.69	28.09	0.32
37	356837	2795	1801	0.78	3603	1400	4999	122692	28	2658	65.73	41.00	24.18
	407554	182		0.04	10566	3798	9250	88723	84	6300	77.08	26.75	13.21
	258980	78		0.03	5158	2095	4963	77202	41	2229	50.41	39.00	37.25
						0	0	4174	15	408	1.28	38.90	0.41
	514553	772		0.15	27074	5861	17598	90104	98	5296	37.79	35.51	12.34
					1986	612	2352	9478	16	441	9.82	41.55	0.72
	156179	124		0.08	5911	1965	5454	21154	36	1522	49.06	85.81	49.13
29	242175	5829	4395	2.41	3501	532	2550	61073	37	2259	42.94	22.68	31.30
	144600	277		0.19	11568	481	4718	8603	28	1350	10.67	81.56	16.04
						0	0	6349	9	497	0.68	17.60	0.00
	281546	88		0.03	8273	2465	6811	17768	45	1804	5.50	37.94	3.59
	137078	1423		1.04	3947	1286	4186	12319	46	2746	27.52	39.05	12.64
127	229425	20712	16480	9.03	9434	7696	14099	65515	40	1676	51.63	35.05	4.12
	375365	203		0.05	3070	1074	3812	56617	50	3136	41.06	52.19	11.78
					6053	1801	8617	33333	29	1111	34.19	83.91	3.37
					3226	1120	4918	8649	11	435	19.70	83.64	1.46

Documents in this series:

- National Climate Change Adaptation Strategy for Sri Lanka (NCCAS) 2011-2016 (Sinhala, Tamil and English versions)
- Information, Education and Communications Strategy for Climate Change Adaptation in Sri Lanka
- NCCAS Brochures (Sinhala, Tamil and English versions)
- Sector Vulnerability Profiles (SVPs):
  - Urban Development, Human Settlements and Economic Infrastructure
  - Agriculture and Fisheries
  - Water
  - Health
  - Biodiversity and Ecosystem Services
- Survey on Public Perceptions of Climate Change in Sri Lanka 2010
- Climate Change Vulnerability Data Book

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